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# MONITORING FOREIGN OWNERSHIP OF U.S. REAL ESTATE

A Report to the Congress

Volume 2

U.S. Department of Agriculture 1979

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A Report to the Congress

Volume 2

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## Chapter 7

### MULTIPLE-PURPOSE LAND DATA SYSTEMS

D. David Moyer\*

Though the change in the historical situation that spawns our current problem is widely misperceived and its underlying information problems largely unperceived, our new concerns are generating a burgeoning interest in information.

Edgar S. Dunn, Jr.<sup>1/</sup>

#### INTRODUCTION

This chapter sets out in some detail two multipurpose land data system (MPLDS) models. A model system based on a network of county land record systems (Scenario III) is described, along with a model based on a national statistical survey system (Scenario IV). These descriptions will provide a benchmark for the MPLDS feasibility evaluations in chapters 10, 11, and 12.

As a prelude to the model descriptions, this chapter also reviews the background of MPLDS. This review includes a discussion of the reasons that multipurpose systems are considered as an alternative for collection of foreign landownership data and the assumptions that underlie multipurpose data systems generally.

It is not proposed that the ideal MPLDS described here be immediately implemented for the entire country. Rather, the two models described here can serve as goals toward which we can proceed. For instance, as chapter 10 discusses, substantial cooperative efforts by all levels of government will be needed if the network MPLDS is to become operational in each county in the United States. The feasibility analysis in chapter 10 also discusses the minimum parts of these ideal systems that need to be implemented to satisfy the needs for data about foreign investment in United States real estate, as well as several other data needs by local government.

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\* /Economics, Statistics, and Cooperatives Service, U.S. Department of Agriculture.

<sup>1/</sup> Edgar S. Dunn, Jr., Social Information Processing and Statistical Systems--Change and Reform (New York: Wiley and Sons, 1974), p.5.

In addition to the description of the model (or ideal) system for each of the two approaches, selected examples drawing on experiences from operating systems are discussed. The inclusion of these operating examples is for the purpose of both aiding the descriptive process and illustrating how specific parts (modules) of the MPLDS might be implemented.

## BACKGROUND

This section includes a review of the assumptions which underlie MPLDS and their development, a classification system for MPLDS, and a discussion of four major types of MPLDS that were considered initially in this study.

### Assumptions

In the development of the second part (Scenarios III and IV) of the International Investment Survey Act (IISA) studies, several assumptions were made. For instance, as to multipurpose data systems in general, certain assumptions were made regarding the expected costs and benefits of such systems. It is assumed that costs of jobs currently being carried out by government will be lower, using MPLDS. These economies are expected to result from such areas as reduction in data collection costs due to combined efforts and reduced storage costs due to fewer files being maintained. A recent case study in Wisconsin regarding the public costs of maintaining government land record systems supports such assumptions.<sup>2/</sup>

In addition, it also is assumed that additional benefits will accrue to government due to a capability of carrying out new tasks. These new tasks may have been prohibitively expensive or technically impossible. One such new research task requires a capability for making interclass comparisons of landowners (e.g., foreigners vis-a-vis nonresident citizens; resident farm landlords vis-a-vis resident farm operators, etc.).

Input to the MPLDS is assumed to come primarily from public sources (i.e., public land records, government research, etc.). We recognize that there exists in the private sector a substantial quantity of land data. These data are collected and stored by various groups, including title insurers, private survey organizations, and professional associations. If problems of disclosure and compatibility can be resolved, it is possible that some of these data could serve as inputs to the county data base in the network MPLDS. Similar cooperative efforts may be possible for the survey MPLDS as well. Even if actual merging of data is not possible, continuing discussions to ensure that public data bases are compatible with the needs of private sector users would seem to be in order.

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<sup>2/</sup>Barbara Larsen, et al., Land Records: The Cost to the Citizen to Maintain the Present Land Information Base, a Case Study of Wisconsin, (Madison: Wisconsin Department of Administration, 1978), pp. 1-2.



The major user, and therefore the major beneficiary of MPLDS, is assumed to be local government. Occasionally, data will be needed for regional planning and as an input for policymaking decisions at the State or Federal level. The instant concern with the incidence of ownership and control by foreigners of U.S. real estate is a case in point. These data needs would require the funneling of data from the local level to State and Federal coordinating locations. However, because of the structure of local governments and the importance of property data at the local government level, it is expected that local government offices will be the primary user and receive the majority of benefits that accrue to coordinated, multipurpose data systems.

A final assumption as to MPLDS concerns their capability to provide transaction data as well as status data regarding specific classes of land-ownership.<sup>3/</sup> While the monitoring of transactions (i.e., purchases and sales of land) within a given time period is an important land data system capability, the capability to measure and analyze the status of ownership and control of land is much more important. For example, information on class of owner (e.g., foreign owners, corporate owners, nonresident owners, individual resident owners, etc.) can be obtained as an output of the MPLDS if status data are contained in the data base. Status data capability permits interclass analysis of ownership patterns as of a given date, as well as comparison between given time periods and points in time. The comprehensive analysis of foreign landownership for policy determination requires that status data be available to permit benchmark studies.

#### Classification System for Multipurpose Land Data Systems

The classification method on which the multipurpose systems are built is the same as for the single-purpose systems (see chapter 5). That is, the three factors of approach (direct or indirect collection of foreign ownership data), type of data system (intelligence or statistical), and role of the Federal Government (active or passive) were considered.

Scenario III and IV studies are distinguished from those in Scenarios I and II by the approach to the compilation of foreign ownership data. That is, since collection and analysis of foreign ownership data are the only functions of the two systems analyzed in Scenarios I and II, these two systems are classified as direct. In Scenarios III and IV, since the systems are multipurpose, with foreign ownership data being only one of many categories of data included, the systems are classified as indirect. The purpose of the classification by approach is to emphasize the primary objective of Scenarios III and IV, the evaluation of multipurpose information system feasibility. A secondary objective is to evaluate the capabilities of MPLDS in monitoring foreign landownership.

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<sup>3/</sup>Transaction data can be defined as relating to the transfer of ownership rights from one person (or entity) to another. Status data are more comprehensive (and thus more difficult to obtain), because they relate to a complete picture of landownership rights at a given point in time.

A second classification category, type of data, is based upon a suggestion by Dunn that information can be divided into two categories, intelligence and statistical.<sup>4/</sup> This distinction relates to the kind of output possible from a system, rather than to what data are collected or how these data are stored. For instance, an intelligence system can provide relevant data for each individual in a given population (e.g., each parcel of land or each landowner in a county). In contrast, a statistical system provides data, on a sample basis, about a given population. Therefore, statistical-type output is in the form of aggregated data (or descriptive statistics), describing certain characteristics of the population in question. Intelligence-type output provides data about each entity in the population.

The third factor considered in developing a schema for land data systems is the role of the Federal agencies involved. For instance, consideration of whether Federal agencies will have either an active or a passive role will impact on procedures used for collecting, compiling, and reporting data. It was assumed that, as a general rule, an agency would assume either an active or a passive role (i.e., as a collector-initiator or as a user-receiver). (A detailed discussion of four indirect MPLDS considered can be found in chapter 1.)

#### NETWORK MULTIPURPOSE LAND DATA SYSTEM (MPLDS)

The two multipurpose land data systems in the remainder of this chapter are classified as indirect systems, in that ownership of U.S. land by foreigners is one of many information outputs that the systems are capable of producing. These two indirect systems are referred to as Scenarios III and IV in the remainder of this chapter, comparable to Scenarios I and II, the direct systems that were analyzed earlier.

The discussion of each of the multipurpose systems is divided into three sections: (1) a review of the structural features of each system, (2) a review of characteristics in terms of the kinds of data included, and (3) a review of system capabilities in terms of uses.

The two indirect systems are, in general, ideal, based upon past study and currently available technology. In many instances, the suggested systems are based on elements (or parts) of systems already operating. The determination of the feasibility of these systems is left to later chapters in this report and to the decisionmakers who will act, based on this information. The purpose of these outlines is to provide a description of systems that we have the capability to develop, what they would look like, what data they would contain, and the uses which they could serve.

There are, of course, several additional configurations of model systems that could have been considered. For instance, an education data system currently exists that utilizes a Federal/State/local government cooperative

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<sup>4/</sup>Supra note 1, pp. 184-85.



system of compiling statistics. However, the feasibility analysis contained in chapters 10 and 11 focuses on the two systems outlined in this chapter. Since incremental implementation (e.g., of specific modules of a network MPLDS) are assumed, policymakers may wish to consider specific systems in more detail (e.g., obtain analysis of one or more narrowly defined systems).

### Structure

In basic terms, Scenario III can be thought of as a network of local government data systems. That is, it is assumed that each county (or similar governmental unit in New England) will have a cadastre.<sup>5/</sup> For purposes of discussion, the network MPLDS can be thought of as a three-part cadastre: fiscal, juridical, and environmental. The cadastre described by Binns would encompass the fiscal (or taxation) component. Records of rights related to ownership and control of land make up the juridical (or title record) component. The third type of records, dealing with physical qualities of the land parcel (i.e., soils, uses, structures, etc.), can be classified as the environmental component of the MPLDS.<sup>6/</sup>

### General Structure

County systems.--It is assumed that a stand-alone MPLDS can be implemented in each county or other appropriate local jurisdiction (e.g., town in New England). One office, either existing or a newly created one, will provide the focal point for the land data system. For purposes of this study, the assessor's office is assumed to be the lead local government office for the network MPLDS (see table 7-1).

Reliance on assessor files to serve as a data foundation for the network MPLDS relates primarily to the current status of assessor files (see chapter 8). That is, assessor files contain data on most privately owned land parcels, the information is updated regularly, and the status of each land parcel is available as of a given date. While title records generally cover all land, the organization of title records depends on indexing by transactions (i.e., transfers), making analysis at a given point in time (e.g., proportion of foreign landowners) practically impossible. Similarly,

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<sup>5/</sup>Binns defines a cadastre as "a record of areas and values of land and landowners for the purposes of taxation." Sir Bernard O. Binns, Cadastral Surveys and Records of Rights in Land, Food and Agriculture Organization of the United Nations, Rome, Italy, March 1953, p. 14.

<sup>6/</sup>For a detailed discussion of the juridical and fiscal components, see Gene Wunderlich, "Juridical or Fiscal Cadastre: Economics of Land Information Systems," in Proceedings of the North American Conference on Modernization of Land Data Systems, Washington, D.C., April 1975, pp. 47-67.

Table 7-1--Structure of a multipurpose land data system (MPLDS)

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General structure

Stand-alone system in each county

Build on current tax record system

Intracounty linkage of land data offices via compatible indexing

Linkage of reports from county systems, compiled through a State/Federal network

System will be automated by use of computers and suitable peripheral equipment

County participation will be voluntary

System initially should include all private land, eventually include both public and private land

Specific structure

Ownership parcel is basic data unit in system

Unique number used to identify each parcel

Set of accurate large-scale maps will be maintained

An index is available for all parcels in each data file

Cross-reference indexing capability to permit access by name, street address, and tract and map number, as well as by primary parcel identifier

When accuracy of survey system is adequate, coordinate-based descriptions should be used for each parcel

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planning data systems often are not complete and usually contain data collected for specific, specialized studies for selected areas, rather than for all parcels in the jurisdictions. Therefore, land-use planning is assumed to be a major user of output from the network MPLDS, rather than as a major supplier of data about land to the system.

In general, the local government real estate assessment systems in the United States can be characterized as follows (see chapter 8 for a detailed discussion of assessor record systems): First, the assessment system is a relatively complete system, with most taxable parcels included. In a growing number of jurisdictions, tax-exempt parcels are included as well.



Second, data generally are retrievable from assessment systems for individual owners or individual parcels, as well as for specified classes of owners, parcels, etc. In many jurisdictions, retrieval and compilation of assessment data are routinely accomplished using computerized systems.

Third, assessment systems are updated regularly, many on an annual basis. Even if the complete data base is not updated annually, the name and address of the party responsible for taxes is updated each year. Fourth, the indexes available for assessment systems provide for the retrieval of data by individual parcel (or location) as well as by owner's name, certain classes of owners, parcels, etc. This attribute is the major reason for giving preference to the assessment system over the land title record system.

The main disadvantage of the title system relates to the way the title system is organized and the inherent difficulty in adding new data (such as residency and citizenship of owner) to the system. The title record system is designed to determine the ownership status of individual land parcels, based upon a detailed review of pertinent records (Typically, a history of ownership, based on the owner's name, is constructed.) New data for each transaction (i.e., changes in ownership of property rights) are entered in the system at the time of each transaction. However, the indexing and filing system used in most title record systems precludes the ready tabulation of data on a particular class of owner or compilation of landownership for a county as of a given date. Also, the addition of new data to the title system (e.g., as to citizenship and residency of landowners) would be a relatively slow, awkward process since data traditionally are added to the system only at the time a rights transaction occurs.

While the property tax assessment system is assumed to provide the focus for the network MPLDS, it is not expected that data in the system will be limited to data currently in the assessment system. Nor is it necessary that land data from land-related files in other county offices be added to the data files in the assessor's office. Rather, it is expected that compatible indexing systems will be used throughout the county, making possible the intracounty linkage of all land-related files in all county offices. The intracounty linkage of widespread land data files is particularly adaptable to jurisdictions with computerized record systems, using distributed data processing made possible through the use of mini-computers.

State-Federal network.--In Scenario III, it is presumed that a stand-alone MPLDS will be operating in each local jurisdiction. Each of these local systems will be capable of providing State and Federal information needs, in addition to their primary use by local government. In general, the network MPLDS will not be interactive. Rather, specialized reports covering specific interests will be forwarded to State and Federal agencies

on an as-requested basis. To facilitate information needs of Federal agencies, these reports should be funneled through a designated agency in each State. Precursors of such a network can be found in both Iowa and Minnesota.<sup>7/</sup> In each of these States, one State office has been given primary responsibility for monitoring or regulating foreign land ownership.

In Iowa, The Secretary of State is the responsible State official.<sup>8/</sup> Nonresident aliens, who own or lease "agriculture land" are required to file an annual report with the Secretary of State's office. Also, similar reporting requirements are placed on those acting in a fiduciary capacity (e.g., a trustee) for a nonresident alien owner of agriculture land.<sup>9/</sup> The Iowa legislature recognized that county record systems afford the best source for information about land. Therefore, both county assessors and recorders are required to report annually to the Secretary of State as to names and addresses of nonresident alien landowners.<sup>10/</sup>

In Minnesota, nonresident aliens are required to file a report annually with the Commissioner of Agriculture (State Department of Agriculture). In addition, since May 27, 1977, nonresident aliens are prohibited from acquiring more than 90,000 square feet of land in Minnesota.<sup>11/</sup> Therefore, it is to be expected that the amount of Minnesota land owner by nonresident aliens will decrease over time, if the statute is effectively enforced.

At the Federal level, there are several alternative offices that could serve as the Federal link in the network. For example, the Office of Foreign Investment in the United States (OFIUS) located in the Department of Commerce is one possibility. Similarly, Commerce's International Investment Division in the Bureau of Economic Analysis (BEA) could be the focal point. If the Treasury Department is selected, the Office of International Investment should be considered. If the U.S. Department of Agriculture (USDA) is to be the lead Federal agency, the Economics, Statistics, and Cooperatives Service (ESCS) or the Agricultural Stabilization and Conservation Service (ASCS) would be logical choices. [ASCS is responsible for data collection and ESCS is responsible for analysis of data collected through the Agricultural Foreign Investment Disclosure Act of 1978 (AFIDA.)]<sup>12/</sup> It also should be noted that an operating local-State-Federal network would be useful in assessing the effectiveness of AFIDA regulations.

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<sup>7/</sup>U.S. House of Representatives, Data on Foreign Ownership of Property Within the United States, Hearings Before the Subcommittee on Census and Population, 95th Congress, 1st Sess., 1977, pp. 40-44; Barlowe Burke and Gene Wunderlich, Secrecy and Disclosure of Wealth in Land, 1978, p. 95.

<sup>8/</sup>House File 215, ch. 133, Acts of 66th Iowa General Assembly, 1975, hereinafter cited as H.F. 215.

<sup>9/</sup>H.F. 215 § 8 (3).

<sup>10/</sup>Iowa Code Ann. § 172.12-13.

<sup>11/</sup>Minn. Stat. § 500.22.

<sup>12/</sup>P.L. 95-460.



Because responsibility for real property law has been largely reserved to the States, the importance of land information to policymakers at all levels of government, and the nature of our system of government generally, close cooperation will be needed to implement the network data system. In particular, it is anticipated that Federal assistance (by providing guidelines as to system design and financial and technical assistance) will be needed if a network system is to be successfully implemented.

System mode.--Substantial improvement in quality and usefulness of land data could be made without computerization. However, to reap the full benefits of a network MPLDS, the system should be automated by the use of computers and suitable peripheral equipment. In particular, all indexes should be computerized as rapidly as possible. This step will provide users with a means for rapid access to all data about a particular geographic area, even if data files themselves are not all stored in computers.

Voluntary participation.--Because of our governmental structure and the nature of our real property system, the participation of local and State governments in the network MPLDS will be voluntary. This characteristic will place special requirements on the Federal Government if network MPLDS are to be fully developed and successfully implemented. For instance, development and distribution of system guidelines to local and State governments will be necessary. Also, technical assistance and financial incentives likely will also be required.

Land included.--It is proposed that the network MPLDS should initially include all private land in the United States. Eventually, all publicly owned land should be incorporated into the system to ensure maximum user benefits.

### Specific Structure

Parcel unit.--The landownership parcel will be the basic building block in the network MPLDS. If a finer breakdown is needed, such as in the case of apartment buildings or condominiums, appropriate subsystems can be introduced. (Such a system was developed in Alexandria, Va., in the mid-1960's.)<sup>13/</sup>

Unique parcel identifier.--Each parcel should be assigned a unique identifying number. This number should be usable as a substitute for a more elaborate parcel description. To be most useful, the network MPLDS system should include at least one identifier in terms of a commonly used geographic coordinate system (e.g., latitude-longitude, State Plane Coordinate, Universal

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<sup>13/</sup>D. David Moyer, "Three Automated Land Data Systems in the United States," Volume 23, Canadian Surveyor, June 1969, p. 140.

Transverse Mercator, etc.). The Bureau of Land Management (BLM) in the Department of Interior currently is developing an information system for the 10 Western States that uses the Federal Rectangular Survey as a basis for parcel identification. Regardless of which one is used, a geographic identifier will facilitate the use of the data system by allowing a user to easily relate a parcel identifier to a map location. The most likely coordinate point would be the approximate visual center of each parcel.

For a few selected data needs, a microfile data base would be a possible alternative for the data base. In such a microfile system, individual parcels would be clustered. A microfile data base thus would help assure the prevention of unauthorized disclosure of information about individuals. (A comprehensive discussion of secrecy and disclosure issues can be found in Burke, chapter 16 *infra*.) However, because of the dominance of parcelized data needs, particularly at the local level, a parcel system is preferable.

Map system.--A system of large-scale, accurate maps should be maintained for both urban and rural areas. Map scales and related criteria will depend largely on population density. Scales of 1:500 in the central cities and 1:2,000 in rural areas should be satisfactory. In the Land Registration and Information Service (LRIS) program in the Canadian Maritime Provinces, a large-scale topographic map series has been developed at scales of 1:1,000 to 1:10,000.<sup>14/</sup> The maps serve as aids in the collection, storage, retrieval, and use of many kinds of map data.

Parcel index for each file.--A parcel index is necessary for an efficient parcel-based land data system. The use of name indexes, rather than parcel (or location) indexes is one of the primary causes of inefficiency in the U.S. land title and land transfer system. A standardized parcel indexing system will allow the retrieval and analysis of parcel data from a number of separate files, without actually merging the files themselves.

Coordinate-based parcel descriptions.--Once sufficiently accurate survey and mapping are available, each parcel should be described using a system of geographic coordinates tied into a national or international grid system. (Ideally, the grid system used for parcel description will be the same system as is used for the parcel identifier number discussed above). This coordinate description capability will provide substantial benefits to MPLDS users concerned with land surveys and land titles.

Cross-reference indexing capability.--Because of the heavy use of parcel-based land data systems at the local level, ease of access must be assured.

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<sup>14/</sup>Ellis H. M. Jagoe, "An Introduction and Economic Review of Maritime Land Registration and Information Service" in Volume 2, Information System Inputs to Policies, Plans and Programs, papers from 15th Annual Conference of the Urban and Regional Information System Assn., Chicago, Ill., 1977, p. 112.



To ensure such ease of access, users must be able to retrieve data and make enquiries, using a number of commonly understood identifier systems. These include street address and name of owner or seller, as well as by locally based tract, map, book, and block systems.

### Contents

This section describes the network MPLDS model in terms of the data it could contain. This content description assumes the structure outlined in the previous section is in use. The contents are specified for each of the three major types of cadastres set out earlier: fiscal, juridical, and environmental.

It is assumed that all of these data are public records, that is they all are presently part of, or could be made a part of, public record files.

It should be emphasized again that the network MPLDS described here is an ideal system, designed to incorporate all land-related data in a comprehensive system. In the feasibility analysis that follows in later chapters, it is noted that not all components of this MPLDS have to be implemented at once. Also, many functions can be carried out without implementation of all parts of the system. For example, information system development can be viewed as a continuum ranging from our present land record system to a fully implemented network MPLDS. This suggests that data on foreign direct investment (FDI) in real estate could be provided by moving development of the land data system along the continuum to a point somewhere between the presently operating system and the ideal proposed. At this point on the continuum, there would exist a minimum data set (MDS) and a land data system that could provide the requisite data on FDI in U.S. real estate.

It should be noted that the most efficient way to develop a complete network MPLDS, and the way to maximize benefits from such system, is to move toward the ideal system as rapidly as possible. This is the approach that we recommend be used if at all possible. However, it also is recognized that development of the ideal network MPLDS will require substantial investments. Therefore, it is recommended that the assessment system be used for the initial data base and that innovations be implemented one at a time. This should minimize the fiscal impact on government during any one budget period, as well as helping assure a smooth transition from present data systems to new ones.

### Fiscal Cadastre

Data suggested for inclusion in an ideal fiscal cadastre system are contained in table 7-2. (Similar descriptions of the juridical and environmental cadastres are contained in the following sections.) While every item is not discussed in detail, several general points are mentioned to assist in developing a clear understanding of the fiscal cadastre.

Table 7-2--Fiscal cadastre data content, network  
multipurpose land data system

---

\* Identifier--new (present) parcel<sup>2/</sup>,<sup>3/</sup>,<sup>5/</sup>

\* Identifier--old (previous) parcel<sup>2/</sup>

\* Owner name (grantee)<sup>2/</sup>

Seller name (grantor)<sup>2/</sup>

\* Owner address<sup>2/</sup>

- individual
- headquarters of firm

Taxpayer name

Taxpayer address

\* Residence<sup>2/</sup>

- individual owner
- if business, parent company location

\* Citizenship<sup>2/</sup>

- citizen
- resident alien
- registered nonresident alien

\* Type of owner<sup>2/</sup>

- individual
- partnership
- corporation
- trust

Total holdings

- this county
- this State
- United States

List of building permit history

- date
- amount (dollars)
- work permitted

Latest building inspection

- date

Latest assessor field visit

- date

(Continued)



Table 7-2--Fiscal cadastre data content, network  
multipurpose land data system (continued)

---

Parcel (site) characteristics--land	
-	neighborhood age
-	sewer
-	water
-	gas
-	sidewalk
-	corner lot
-	distance to recreation, parkland
-	quality of landscaping
* -	size and shape (square feet, square meters, acres, hectares) <sup>2/</sup> , <sup>3/</sup>
-	lot frontage <sup>2/</sup> , <sup>3/</sup>
-	on road
-	type of road surface
-	on water
Parcel characteristics--structure	
-	size <sup>4/</sup>
-	square feet--total
-	square feet--first floor
-	square feet--second floor
-	square feet--basement
-	number of rooms
-	number of baths
-	quality of structure (grade or condition)
-	number of stories
-	construction type (frame, etc.)
-	age (e.g., effective age, year built, etc.)
-	class (e.g., improved residential)
-	exterior (e.g., brick veneer)
-	roof type (e.g., asphalt shingle)
-	foundation (e.g., masonry walls)
-	basement (full, half, none)
-	attic
-	heating
-	central warm air
-	air conditioning
-	central
-	plumbing (e.g., standard water heater)
-	interior finish
-	basement (e.g., dry wall)
-	first floor (e.g., dry wall)
-	second floor (e.g., dry wall)
-	floor type (hardwood, tile, etc.)
-	fireplace
-	built-in appliances
-	garbage grinder
-	oven
-	stove
-	dishwasher

(Continued)

Table 7-2--Fiscal cadastre data content, network  
multipurpose land data system (continued)

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Special assessments
- purpose
- amount (dollars)
Special exemptions (by type)
- none
- partial (percent)
- totally exempt
School district number <sup>3/</sup>
Census tract number <sup>3/</sup>
Census enumeration district number <sup>3/</sup>
Type of transaction (how acquired) <sup>2/</sup>
- voluntary sale
- estate settlement
- foreclosure
- gift
- all others (inheritance, tax sale, misc.)
Date of transfer <sup>2/</sup>
- month/year
Value
* - purchase price (last transfer) <sup>2/</sup>
* - assessed value, total
- assessed value, agriculture
- assessed value, residential
- assessed value, commercial
- assessed value, manufacturing
- assessed value, other
- assessed value, land only
- assessed value, improvements only (buildings)
- appeals history
Tax assessment (bill for current year)
- status of account (paid total, paid first half, etc.)
Zoning (existing) <sup>2/</sup>
* Land use, current
- level <sup>1</sup> <sub>2/3/</sub>
Index (to records within system) <sup>2/</sup>

(Continued)

Table 7-2--Fiscal cadastre data content, network  
multipurpose land data system (continued)

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Parcel description<sup>2/</sup>

- textual
- map

Parcel address <sup>2/</sup>,<sup>3/</sup>

Kind of document recorded (evidence of last property  
right transfer)<sup>2/</sup>

- date recorded<sup>2/</sup>

Nonrecord right<sup>2/</sup>

- land contract
- assignment of interests in trusts
- court judgments (land not in county where court located)
- Federal tax liens

---

<sup>5/</sup>\* = items in minimum data set required to provide foreign  
investment in real estate information.

<sup>2/</sup>Similar data item in juridical cadastre.

<sup>3/</sup>Similar data item in environmental cadastre.

<sup>4/</sup>Size data for single-family residential structures;  
comparable data will be included for other property types

---

First, some of the data suggested for the ideal fiscal cadastre already are contained in the data systems maintained by most local assessors. Owner's name and total assessed value are examples of such items. Second, some of the items are found in a few presently operating systems (e.g., those using computer-assisted systems to assess property.).<sup>15/</sup> Several items concerned with the size and quality of the structure, and quality of the neighborhood are examples of these items.

All of the suggested data would be useful, either to assessing officials or other present and potential users who would benefit from having access to such data. The residence, address, and citizenship of owner and taxpayer, as well as applicable land-use classes are examples of such items.

It should be noted that many of the data items concerning the structure are specifically related to residential property. That is, particular data that would be used in a computer-assisted value assessment system are

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<sup>15/</sup>Chapter 8, infra, discusses in detail the current content and structure of assessor files.



described in terms of single-family residences (e.g., number of bathrooms, area of first floor, basement, garage, etc.). Structure characteristics in table 7-2 were restricted to single-family residences for several reasons.

First, the great majority of all real estate, in terms of parcels, is made up of single-family residential parcels. Therefore, these data will be used most often and by the widest group of users. Second, data needs for value assessment of single-family residences are more clearly defined than for other types of property. These needs have been defined most specifically for use in computer-assisted systems. Third, if it is possible to standardize procedures and data needs for more complex assessment tasks (e.g., valuation of property related to manufacturing and commercial operations), the practices used for residential systems should provide important insights into data needs for these additional areas.

For some of the fiscal cadastre data items, there are counterparts in the juridical and/or environmental cadastres. The existence of these equivalents is noted in each of the three tables.

A major difference between the fiscal cadastre and current assessor files is the provision for time series data in the fiscal cadastre. That is, the contents of assessor files generally pertain only to current conditions, values, etc. By maintenance of historical files, the fiscal cadastre will facilitate the analysis of changes over time (e.g., as to market value, assessed value, amount of land owned by foreigners, etc.).

Most of the data items in the fiscal cadastre can be classified into three groups; the land parcel, structures on the land, and the owner. For example, parcel characteristics include such items as parcel identifier, size, shape, road frontage, neighborhood quality, assessed value, and location identifier such as school district, census tract, etc. Structure (building) characteristics include such items as size, quality, type of construction, and value. Owner characteristics include name, address, residence, citizenship, type of ownership, and total landholdings. Total holdings is not strictly a single data item within the fiscal cadastre. Rather, total holdings relates to an individual, corporation, etc. Therefore, total holdings is an output capability of the fiscal cadastre, dependent on the organization and analytical capabilities of the network MPLDS.

In addition to these three groups of items, several items pertain to two or more of the three groups. These items include zoning, nonrecord rights, special assessments, and various common indexes. Finally, a few of the items pertain to the latest transaction (i.e., involving the transfer of rights in the property from one owner to another). These items include the date and type of transaction, kind of document recorded concerning the transfer, and the identify of the seller.

### Juridical Cadastre

Table 7-3 contains data that are suggested for inclusion in an ideal juridical cadastre. Whereas the fiscal cadastre is concerned largely with data

Table 7-3--Juridical cadastre data content, network  
multipurpose land data system

- 
- \* Identifier--new (present) parcel<sup>1/</sup>,<sup>3/</sup>,<sup>5/</sup>
  - \* Identifier--old (previous) parcel<sup>1/</sup>
  - \* Owner's name (grantee)<sup>1/</sup>
  - \* Seller's name (grantor)
  - \* Owner's address<sup>1/</sup>
    - individual
    - headquarters of firm
  - \* Residence<sup>1/</sup>
    - individual owner
    - if business, parent company location
  - \* Citizenship<sup>1/</sup>
    - citizen
    - resident alien
    - registered nonresident alien
  - \* Type of owner<sup>1/</sup>
    - individual
    - partnership
    - corporation
    - trust
- Covenants, future interests, leaseholds, reservations, etc.
- Type of transaction (how acquired)<sup>1/</sup>
- voluntary sale
  - estate settlement
  - foreclosure
  - gift
  - all others (inheritance, tax sale, misc.)
- \* Interest acquired
    - fee simple
    - mineral rights
    - water rights
    - air rights
    - easement (by type, e.g., scenic, right-of-way, etc.)

(Continued)

Table 7-3--Juridical cadastre data content, network  
multipurpose land data system (continued)

- 
- \* Date of transfer<sup>1/</sup>
    - month and year
  - Liens (existing on property)
  - Zoning (existing)<sup>1/</sup>
  - \* Value <sup>1/</sup>
    - purchase price
  - \* Land use, current
    - level I<sup>1/</sup>,<sup>3/</sup>
    - level II<sup>1/</sup>
  - \* Location
    - urban
    - rural
  - Index (to records within system)<sup>1/</sup>
  - Parcel description<sup>1/</sup>
    - textual
    - map
    - coordinated boundary locations
  - Parcel address
  - \* Parcel size (square feet, square meters, acres,  
hectares)<sup>1/</sup>,<sup>3/</sup>
    - Kind of document recorded (evidence of last property right  
transfer)<sup>1/</sup>
      - date recorded<sup>1/</sup>
    - Nonrecord (typical) interests<sup>1/</sup>
      - land contract
      - assignment of interests in trust
      - court judgments (land not in county where judgment  
entered)
      - Federal tax liens
- 

<sup>5/</sup>\* = items in minimum data set required to provide  
foreign investment in real estate information.

<sup>1/</sup>Similar data item in fiscal cadastre.

<sup>3/</sup>Similar data item in environmental cadastre.



related to assessment and tax collection, the contents of the juridical cadastre relate largely to questions of ownership of each land parcel in the geographic area included in the cadastre.

As was the case in the fiscal cadastre, some of the suggested data in the juridical cadastre already are included in title record systems in many jurisdictions. Examples of such data include the name of the owner (grantee) and seller (grantor), the interest acquired (owned), the date of transfer of specific property rights, the property description, and an index to information contained in the title record system.

Some of the data suggested for the ideal juridical cadastre are found in some (but not all) presently operating systems and usually are not uniformly found even within a given jurisdiction. Examples of such items include address of owner, type of owner, type of transaction, and liens against the parcel. It is proposed that these items be available in the juridical cadastre for all parcels.

It should be noted that a parcel may have two or more owners, due to multiple purchasers (e.g., of fee-simple interest) or to fragmentation, with several owners holding different portions of less-than-fee interests (e.g., mineral rights, timber rights, etc.). Each of these ownership interest will be indexed and retrievable by the individual parcel to which the interest relates.<sup>16/</sup>

Several suggested data items are not presently included at all, or if so, only infrequently. Examples include residence and citizenship of owner, zoning in effect, land use, and several items that are currently "nonrecord" (i.e., they usually are not recorded).

The items suggested for the juridical cadastre apply in general to all types of real estate, ranging from single-family residences to farms and manufacturing plants. Thus, if implemented, information about foreign owners would be readily available.

It should be emphasized that the use of the U.S. land title record system for monitoring and analyzing the status of ownership (i.e., who owns what at a given point in time) will require substantial changes in the content and operation of the title record (juridical system). That is, the present title system is organized to record each transfer of property rights. The series of transfers that pertain to a particular parcel make up what is known as the "chain of title" for that parcel. When a title is evaluated (by an attorney, abstractor, or title insurance company), this series of transfers is examined to assure that there are no "breaks" in the chain.

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<sup>16/</sup>See Gene Wunderlich, Facts About U.S. Landownership, Agriculture Information Bulletin No. 422, U.S. Department of Agriculture, 1978, pp. 9-11, for a detailed discussion of multiple owners of parcels and interests in parcels.

The present system of maintaining records on the "chain" of transfer often is criticized as being cumbersome and overly expensive.<sup>17/</sup> However, the serious deficiency of such activities as determining status of ownership at a given time (e.g., how much U.S. land is owned today by foreigners from what countries) is that it cannot be determined directly from the present title system. Rather, a search of records for each parcel must be made to determine who owns the land now. Also, more often than not, it is not possible to determine residence and citizenship of the owner from the title system. Therefore, new data would need to be added to the system, and relatively complex review of title records would be required. It is because of these two particular problems that the linking of record files from various offices into a network MPLDS is such an attractive alternative.

In contrast to the three groups of data items contained in the fiscal cadastre (i.e., parcel, structure, owner), much of the juridical data in table 7-3 are related to the owner or the latest transaction involving the parcel. This is consistent with the traditional organizational structure of the U.S. land title record system. Most of the remaining data items in the juridical cadastre are related to the interests acquired or the claims outstanding against the property (and subsequently against the owner, whoever he may be). Less than fee interests, such as mineral or air rights, liens, and future interests are examples of these items. Nonrecord rights are, by definition, an addition to the current title system that would be a major improvement in ensuring a complete and accurate picture of the rights to and claims against a particular parcel.

### Environmental Cadastre

Data suggested for inclusion in the third cadastre (i.e., environmental) are contained in table 7-4. As outlined, the environmental cadastre contains the smallest number of data items. These data are concerned primarily with the physical characteristics of the parcel (e.g., whether a house or other structure exists on the property, the existing land use, ground cover, and land-use regulations that exist, etc.). In addition to parcel identifying number, several geographic area designators are included (i.e., school district number, census tract, and census enumeration district numbers). When all three cadastres are fully operational and suitable software is available, these area designators can be eliminated from the individual cadastre file. This elimination will be possible if two assumptions are realized: First, the parcel identifiers used will be in terms of geographic coordinates. Second, software will be available to facilitate the generation of the area designators, based on a description of the particular area (e.g., school district) in terms

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<sup>17/</sup>The land title record system has been described as "cumbersome, expensive, time-consuming, delaying, deceptive, defective, inadequate, incomplete, inept, imperfect, uncertain, unprofitable, undesirable, unsuitable, and downright stupid." See Angus C. Hamilton, "Land Registration and Filing Environmental Data in Eastern Canada", in Volume 23, Canadian Surveyor, March 1969, p. 14.

Table 7-4--Environmental cadastre data content, network  
multipurpose land data system

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Identifier (present parcel) 1/, 2/

Size (square feet, square meters, acres, hectares) 1/, 2/

Lot frontage<sup>1</sup>/

- on road
- on water

School district number<sup>1</sup>/

Census tract number<sup>1</sup>/

Census enumeration district number<sup>1</sup>/

Land use, current

- level I<sup>1</sup>/, <sup>2</sup>/
- level II<sup>2</sup>/

Land use, planned

- level I
- level II

Ground cover

Structure

Soil class (I-VIII)

Topography

- elevation
- slope
  - minimum
  - maximum
  - average

---

1/Similar data item in fiscal cadastre.

2/Similar data item in juridical cadastre.



of the same coordinate system as is used in the parcel identifier system.<sup>18/</sup> Until such time as these capabilities are available, the area designators should be maintained within each data system (e.g., the environmental cadastre).

It should be noted that substantial amounts of data in the fiscal cadastre (see table 7-2) also would be useful in conjunction with data in the environmental cadastre. Parcel characteristics related to the land (as opposed to structures) are prime examples of these data. In the next section, the capabilities and uses of a network MPLDS are examined. Examples of government and private business functions that can be provided via such systems also are noted.

### Capability and Uses

This section contains a discussion of some of the capabilities and uses that characterize a network MPLDS. Table 7-5 contains an outline of the capabilities and uses in several major areas. While the list in table 7-5 is not all-inclusive, it is provided to indicate the wide range of uses and users that will be served by the network MPLDS once it is fully implemented.

### Assessment

There are a number of assessment-related tasks that will be facilitated by the network MPLDS. These tasks include listing, valuation, equalization, billing, collection, and monitoring tax account status.

Listing.--The first task which must be performed for all assessment offices is the compiling of a complete list of all parcels to be assessed. In many parts of the United States, this task is performed by the county or municipal assessor who carries out all other assessment tasks as well. In a relatively small proportion of jurisdictions, the listing function is carried out by a special government official, separate from the official who is responsible for value assessment. This procedure often is used in States where the township (rather than the county) is responsible for value assessment.

In areas where a tax lister is part of the system (e.g., Wisconsin and Michigan), the lister is responsible for compiling a list of all taxable parcels annually. Once the list has been completed, the lister merely updates the list each year, adding any new parcels that have resulted from subdivision of old parcels and deleting any parcels that have been consolidated with other parcels.

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<sup>18/</sup>For example, the coordinate description of a school district, such as a township would be available. If the grid coordinate parcel identifier falls within the boundary of said township, it would be assumed that the parcel was in that district.



Table 7-5--Uses and users of network  
multipurpose land data system

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Uses--capabilities:

Users:

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Assessment

- List property
- Value property
  - Market value (sale price)
  - Replacement cost new less depreciation (RCNLD)
  - Value to owner (i.e., special characteristics)
  - Value based on income
- Equalize value
- Bill taxpayer
- Collect taxes
- Determine status of tax payments

- Tax lister
- Local assessor
- Private appraisers
- Banks
- State (e.g., Dept. of Revenue)
- Local assessor or treasurer
- Local assessor or treasurer
- Title insurers
- Abstracters
- Title attorneys

Land title

- Maintain title records
  - Recording system
  - Registration (e.g., Torrens system)
- Evaluate status of title (in connection with transfer of property rights)

- Recorder
- County treasurer
- County court
- County clerk
- Title insurance company
- Abstracter
- Title insurance company
- Attorney
- Broker
- Buyer
- Seller
- Mortgage lenders (e.g., bank, insurance company, State agency, Federal agency)
- Mortgage insurer (e.g., insurance company, Federal agency, State agency)

(Continued)

Table 7-5--Uses and users of network multipurpose  
land data system (Continued)

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Uses--capabilities:

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Users:

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Surveying

- Geodetic control network  
(First order control network,  
via triangulation)
- Benchmarks  
(Second order control, via  
triangulation and traverse)
- Project surveys
- Parcel surveys

- Federal agency  
(e.g., Coast and Geodetic Survey)  
State agency  
(e.g., geodetic survey)
- State agency  
(e.g., geodetic survey section)  
County surveyors  
Local engineers
- Private surveyors  
County surveyors  
State highway departments  
Local highway departments
- Private surveyors

Mapping

- Land use and land cover maps  
(1:250,000)
- Land use and land cover maps  
(1:100,000) (for areas with  
new topographic mapping  
base available)
- Topographic (resource)  
(1:10,000 Canada,  
1:24,000 United States)
- Urban (1:1,000 to 1:5,000)
- Property
- Virtual maps

- Implementing environmental  
protection activities  
Resource planning  
Resource management
- Implementing environmental  
protection activities  
Resource planning  
Resource management
- General and environmental  
planners  
(e.g., foresters, geologists)
- Community planners  
(i.e., working in built-up areas)
- Developers, individual parcel  
owners, plat book publishers
- All users of computer-stored  
data, with output in map form,  
with content specified by user

(Continued)

Table 7-5--Uses and users of network multipurpose  
land data system (Continued)

Uses--capabilities	Users:
<hr/>	
<u>Land use</u>	
- Status	
- Landownership patterns	- Planners, buyers, mortgage lenders
- Land use patterns	- Planners, zoning officials, buyers
- Land capability patterns	- Planners, zoning officials, buyers
- Land cover patterns	- Planners, buyers
- Wildlife patterns	- Planners, biologists
- Planning	
- Physical	- Transportation planners, engineers (utilities to parcel, planning and engineering)
- Socioeconomic	- Census data users, business siting
- Policy	- Environmental impact studies
<u>Regulating</u>	
- Zoning	- Zoning officials, buyers, title examiners
- Flood plain zoning	- Local and State environmental, natural resource, and zoning officials
- Subdivision regulation	- Local government officials, developers, buyers, title examiners
- Facility location	- Power plant siting
<u>Public land management</u>	- Forest Service, State departments of natural resources, county governments, municipal governments
<u>Public policy research</u>	
- Land tenure	- Federal and State researchers
- Land reform	- Federal and State policymakers, planners
- Housing	
- Economic development	
- Public service systems	
- Site selection studies	
<u>Public program research</u>	- Federal, State, and local government research (i.e., evaluation of ongoing programs)



Because there are 1,837 real property assessing offices in Wisconsin, most of the 71 counties have a tax lister.<sup>19/</sup> The list prepared by the tax lister includes such items as a number designation for each parcel, the name and address of the owner, and an accurate legal description of the parcel, as determined from the latest records in the register of deeds office.<sup>20/</sup> In addition to the above-described list, the suggested duties of the tax lister include providing of tax parcel maps.<sup>21/</sup> It is further suggested that the materials compiled by the tax lister be provided not only to assessors, but to city, village, and town clerks and county offices that need such materials to carry out their functions.<sup>22/</sup> Therefore, the statutes recognize the multipurpose use that this small part of a complete MPLDS could serve.

The basic purpose of the assessment list is to ensure that all parcels are included and assessed.<sup>23/</sup> A MPLDS that is constantly updated, particularly as to subdivisions, consolidations, and additions of improvements, will provide the requirements for the assessment listing function. The MPLDS also would help reduce the number of duplicate files kept by other county offices and assure access by other local government offices to appropriate tax list data.

Valuation.--A second assessment-related task is the valuation of each parcel, determining the value of the parcel which will be subject to the tax rate set by the local governing body (e.g., county board, city council, town board, etc.). The valuation or assessment of each parcel is one of the largest and most complex tasks involving land records. The magnitude of the task is related both to the number of parcels that are involved, as well as to the complexity of the valuation process itself.

Estimates placed the number of taxable parcels at over 88 million in 1976.<sup>24/</sup> This was an increase of 27 million parcels over the 61 million in 1956. In addition to these taxable parcels, there are several million additional tax-exempt parcels.<sup>25/</sup> Some jurisdictions require that values be placed on each of these parcels, even though they are tax-exempt.

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<sup>19/</sup>Statutory authority is permissive rather than mandatory, as to counties maintaining a tax listing office. Wis. Stat. 70.09(1), 1975.

<sup>20/</sup>Wis. Stat. 70.09(2)b, 1975.

<sup>21/</sup>Ibid.

<sup>22/</sup>Ibid.

<sup>23/</sup>The Wisconsin statute provides that the list include exempt as well as taxable parcels. Wis. Stat. 70.09(2)a, 1975.

<sup>24/</sup>U.S. Bureau of the Census, 1977 Census of Governments, Volume 2, Taxable Property, Values and Assessment Sales Price Ratios, Washington, D.C., November 1978, p. 6.

<sup>25/</sup>U.S. Bureau of the Census, Land Title Recording in the United States: A Statistical Summary, Series SS No. 67, Washington, D.C., 1974, p. 2.

In addition to the large number of parcels, the valuation process for each parcel must rely on a data base containing a number of data items for each parcel. The simplest form of data base is represented by the contents of the tax lists discussed above. More comprehensive data bases are found in jurisdictions that are using a computer-assisted assessment process.<sup>26/</sup>

There are a number of approaches to property valuation, including sale price, comparable sales, replacement cost new less depreciation, and property income. Regardless of the system, use of a computer-assisted assessment program usually means a substantial number of variables are involved. Data for each of these variables must be collected, manipulated, retrieved, and applied for each parcel in the jurisdiction. This translates to a major data processing task.

Because of the magnitude of the data-handling problem, traditional manual methods of property assessment have become inadequate. Also, computer hardware costs have declined substantially during the last 10 years. These two factors have both worked to encourage the use of computer-assisted assessment systems. Jurisdictions currently using computer-assisted assessment systems include Wichita Falls, Tex.; Arapahoe, Boulder, Grand, Mesa, Summit, and Weld counties in Colorado; Lane, Linn, and Benton counties in Oregon; Detroit, Mich., Forsyth County, N.C.; and Alameda County, Calif.<sup>27/</sup> The large number of jurisdictions developing computer-assisted assessment systems has resulted in substantial overlap and duplication of effort. Therefore, a Council of State Governments project was carried out in 1975 and 1976 to provide guidelines to help interested jurisdictions develop compatible systems at minimal cost.<sup>28/</sup>

For valuation of residential parcels, many computer-assisted systems use a multiple-regression analysis (MRA) approach. MRA uses a number of variables from the data base to calculate the market value of each parcel. The exact number and kind of variables used usually is tailored to each jurisdiction. However, data on the quality of the neighborhood and data that quantify the quality and size of each house are the major factors considered (e.g., quality of construction, number of rooms or square feet, and existence of built-in appliances, fireplaces, etc.), are typical factors

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<sup>26/</sup>For a detailed discussion of assessment system data contents, see Douglas Lewis, "Information Contained in Local Assessment Rolls," Volume 12 Assessors Journal, No. 4, December 1977, pp. 239-268.

<sup>27/</sup>James E. Ferguson, "A Module From the Wichita Falls Prototype Integrated Municipal Information System," in Volume 6, International Property Assessment Administration, International Association of Assessing Officers, Chicago, 1974, pp. 258-269; International Association of Assessing Officers, Improving Real Property Assessment: a Reference Manual, Chicago, 1978, pp. 314-317.

<sup>28/</sup>Kentucky Department of Revenue, Real Estate and Land Records System Research Project; Phase I, Final Report, eight volumes, Frankfort, Ky., 1976; D. David Moyer, "Real Estate Assessment and Land Records System," in Volume I, Computers, Local Government and Productivity, Urban and Regional Information Systems Association, Chicago, Ill., 1976, pp. 85-95.



used). The existence of a substantial data base to assist the assessing function often has been recognized as useful for other agencies in areas such as planning and regulation. This recognition has in turn led to multiagency cooperation in land data system development and use.<sup>29/</sup>

Equalization.--A comprehensive data base maintained by each jurisdiction for assessment purposes also provides a valuable tool for equalization of property assessments. In most States, a State agency is responsible for the equalization function. (Equalization is the adjustment, usually by a State agency responsible for supervision of assessment, of the total assessed values to a common base.) While numerous purposes for such adjustments often are provided in the empowering statutes, the most important purpose is to assure the equitable distribution of levied taxes from higher levels of government to underlying municipalities (e.g., States to counties, cities, and townships). The need for equalization usually arises because of a variation in the assessment ratio (i.e., the quotient resulting from dividing the assessed value by the estimated market (or sale price)) that exists among jurisdictions. For instance, in 1976, the State average ratio of assessed value to sales price of sold properties ranged from a low of 3.3 percent in South Carolina to a high of 72 percent in Kentucky.<sup>30/</sup> Similar variations occur within counties in States and even within municipalities in a given county.<sup>31/</sup> The availability of a MPLDS in each county will provide a useful data base for equalization among the jurisdictions within the county. Also, the existence of a MPLDS in each county throughout a State will provide a uniform data base for equalization (and other) purposes on a statewide basis.

Billing and collecting taxes.--A MPLDS can be used to facilitate the actual billing of individual property taxpayers and the collection of these taxes. Local assessing and financial officials (e.g., treasurers) would be the primary users of these capabilities. These officials, along with title examiners (abstracters, attorneys, title insurers) also would use the MPLDS to determine if and when taxes were paid. That is, parcel records could be checked at any time to see whether taxes were paid up to date and, if not, the due date and the amount in arrears.

### Land Title

There are two major land title tasks that will be simplified through use of the network MPLDS. These tasks are the maintenance of land title records and the evaluation of the status of titles at the time of transfer to rights in property.

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<sup>29/</sup>See International Association of Assessing Officers, supra note 27.

<sup>30/</sup>Bureau of the Census, supra note 24, pp. 60-65.

<sup>31/</sup>In 1974, the ratio between assessed value and full value for real estate in the 61 municipalities in Dane County, Wis., ranged from a low of 17.6 percent to a high of 101.6 percent.

Maintenance of title records.--There are two types of title record systems used in the United States, a title recording system and a title registration (Torrens) system. While either title system would be a primary user of the network MPLDS, the greatest use and the system to which the most benefits would accrue would be the recording system. This conclusion is based on the basic nature and structure of the two primary recording systems.

The recording system in each county (or town in three New England States) consists of two parts: (1) one or more indexes indicating where copies of the documents may be found, and (2) copies of documents which make up the public record. Two basic types of indexes are used. The grantor-grantee type is based on the name of the buyer and the name of the seller. The tract index is based on the land parcel, with all documents about a specific parcel being indexed in one location.<sup>32/</sup>

In addition to the indexes, each recording office maintains a copy of each real estate document that has been recorded. While some counties are using microfilm or computers, the great majority of jurisdictions still are using hardcopy for document storage.<sup>33/</sup>

Because the register of deeds (or recorder) is responsible for maintenance of the title record system, it is to be expected that he would be a major user of an MPLDS that included land title records. Such a system would facilitate both the indexing and storage of title records.

Other government offices also would be users of a MPLDS. For instance, county offices of the treasurer, clerk, clerk of courts, and courts handle a variety of documents that affect land titles. Therefore, these offices would provide inputs to the network MPLDS and rely on it for indexing and storage of their land-related records.

Were Torrens registration (as opposed to recording) to be used for all land in an entire county or State, it would simplify both the title system and also implementation and use of the network MPLDS. The title indexing system would be simpler since all title-related documents would be referenced directly to the parcel, rather than via a name index. The use of a parcel-indexed registration system also would make the implementation and use of MPLDS simpler. However, it is important to note that title registration is not a prerequisite to MPLDS implementation.

In addition to government users, a title record maintenance component of the MPLDS also would be available to private sector users. The most

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<sup>32/</sup>A more detailed discussion of indexes found in recording offices can be found in D. David Moyer and Kenneth P. Fisher, Land Parcel Identifiers for Information Systems (Chicago, American Bar Foundation, 1973), pp. 20-24.

<sup>33/</sup>A discussion of the format and content of documents found in land title recording offices is contained in Bureau of the Census, supra note 25, pp. 8-9.



important such user group would be title insurance companies, which maintain their own title plants.<sup>34/</sup> Title insurance plants are the most obvious and widespread example of the duplication and waste of resources that have been spawned by the present title recording system. Since title plants duplicate public records, it is apparent that such duplication requires resources that would not be required if the public record system were maintained in a different manner.

Many counties have two or more private title plants, thus resulting in additional waste of resources due to this multiple duplication of the public record system. Despite their competitive nature, cooperative efforts to maintain a single private title plant for use by several title insurers within a county have proved successful.<sup>35/</sup> The joint use of a title plant is one step along a continuum that logically would result eventually in a well-organized network MPLDS that will serve the needs of all land data users.

Evaluation of title status.--The second major use of title records is in the evaluation of the status (or quality) of title to individual land parcels. This is the use for which the records are stored in the first place. It also is the use in which the public is most interested, since the typical time for use of the system for a title evaluation is when a property right is transferred.<sup>36/</sup>

An evaluation of the status of title involves two basic steps: (1) compiling of the relevant records and (2) an evaluation of the impact of the documents on the title in question. The first step is largely a data-retrieval problem, whereas the second requires the skills of an attorney, abstractor, title insurer, or other trained title examiner. Studies have indicated that in jurisdictions where the personal search by attorney method of examination is used, as much as 50 percent of the attorney's time is devoted to compiling the records and data that are needed to render an opinion.<sup>37/</sup>

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<sup>34/</sup>Many title insurers duplicate many or all of the public records for a particular county and maintain them in a more easily searchable form. These private files of public records are known as title plants.

<sup>35/</sup>For example, four title insurance companies in San Diego County, Calif., have been sharing a single common title plant for several years. Staunton H. Wong, "Conversion of the Conveyance System into a Land Record System," in MOLDS Proceedings, supra note 6, pp. 279-89.

<sup>36/</sup>The most typical transfer is of fee simple rights in a parcel from one owner to another. However, a large group of other activities also often generate the need for an evaluation of the status of title. These activities range from the transfer of mineral rights to the granting of specific rights to lenders in return for mortgage funds.

<sup>37/</sup>See Donn A. Derr, "An Economic Analysis of Alternative Information Systems for Real Property Records," unpublished Ph.D. dissertation, Ohio State University, 1968, pp. 159.

As noted earlier, two systems generally are used to index title records in the recording office, the grantor-grantee and tract index. Some jurisdictions have both types, but if only one index is maintained, the grantor-grantee is almost always the one available.<sup>38/</sup> The procedure required for retrieving relevant documents using the grantor-grantee index provides insight into the substantial time required for its use, as well as the advantages of the tract index to the title examiner.

In figures 7.1 and 7.2, procedures for constructing a chain of title, using the grantor-grantee indexes, are shown. For example, to use these indexes, the searcher must know the name of the last grantee (buyer) or the first grantor (seller) to construct the chain of title.

The following is the procedure for using the grantee index (see figure 7-1). Beginning with the present date and the present prospective grantor, a search is made in the grantee column backward in time, until the present grantor is found as the grantee. The name of the previous grantor is then picked up from the line on which the prospective grantor appears as the grantee. The previous grantor's name is then searched in the grantee column backward from the date of transfer to him until he appears as the grantee. This iterative process is continued until the ownership is traced back to the original government grant or patent. A similar process, using the grantor index, can be used, except that the search is begun with the original grantor, and each subsequent grantee's name is searched in the grantor index.

As each owner is picked up in the chain of title, the copies of documents can be checked in the bound volumes or other document storage system used by the recorder. A separate index volume often is used for each letter of the alphabet. Also, the frequent turnover (sale) of property means that a substantial number of volumes of documents also must be consulted. Consequently, evaluating the status of title using the grantor-grantee index often involves reference to many bound volumes (or comparable storage system units). Availability of a tract index greatly simplifies the title evaluation process, and all index references are found at one location (i.e., referenced by parcel) in the tract index.

In a network MPLDS, it is assumed that ultimately a computerized indexing system will be used for referencing all land data. There are title record systems with a computerized indexing system that could serve as prototypes for indexing systems in the network MPLDS.

The Forsyth County, N.C., register of deeds office is one of the most modern recording offices in the United States. One of the modern information handling tools they have been using for a number of years is a computerized system for indexing all real estate documents.<sup>39/</sup> Suffolk County, N. Y., and Pinellas County, Fla., also use a computerized system for indexing.<sup>40/</sup>

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<sup>38/</sup>Bureau of the Census, supra, note 25, pp. 9-10.

<sup>39/</sup>Winston-Salem and Forsyth County, Local Government Efficiency Review, Findings and Recommendations, (Winston-Salem: 1975), p. 106.

<sup>40/</sup>Eunice H. Ayers and Gene Wunderlich, "The Recorder and Land Records," in Moyer and Fisher, supra note 32, p. 1-265.



Figure 7-1--Use of grantee index to construct a chain of title

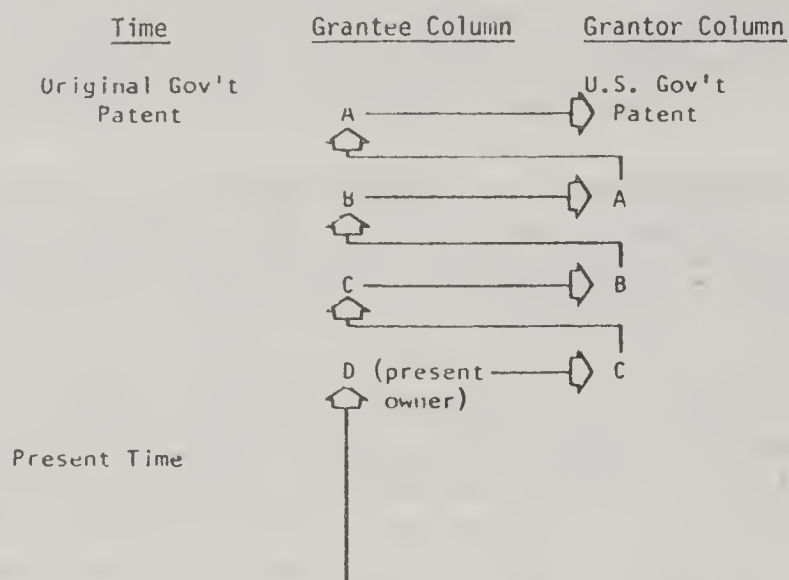
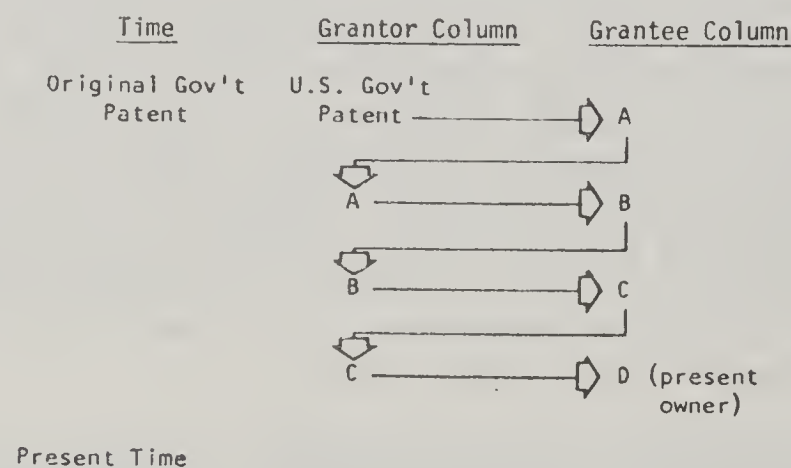


Figure 7-2--Use of grantor index to construct a chain of title



Several techniques for computerizing the indexing process are available to the local recorder. For example, the index entries can be typed once on a multicopy carbon system. One of the carbons can be sent to a service bureau for processing while the original (with an adhesive backing) is placed in the current working hardcopy index. The service bureau processes the data and produces as many separate indexes as the recording office requires.

The computer processing permits multiple formats from the same data, (e.g., grantee, grantor, and tract) and also facilitates the production of hard-copy indexes (printouts) at times and for periods as specified by the

recorder (e.g., monthly, annually, 5 years, 10 years, etc.). This technique is especially suited to jurisdictions that do not have a computer or with only limited in-house computer capacity.

A second technique used in computerized recording office index systems is to produce computer inputs directly using a keyboard terminal (remote data station). Due to the recent economies in distributive data processing systems, terminal input can be sent through an intermediate step, that is, a minicomputer. This procedure permits the temporary storage of data (e.g., on a disk) with input to the host computer made during slack periods of the day.

The technique outlined above recently was implemented in Dane County, Wis.<sup>41/</sup> In the Dane County system, the index data are processed each evening, after being stored in a minicomputer disk system as entered during the day. A transaction index is available in hardcopy the following morning. The transaction file is verified and any errors found are corrected via the remote data entry terminals that were used to produce the original input (Entrex 600). Following verification, the computer then produces grantor, grantee, and tract indexes. At the end of each month, indexes are incorporated in life-to-date files to facilitate convenient reference by users.

Computer systems equipped with minicomputer terminals will be an important part of a network MPLDS. While such systems will not be mandatory, they will provide the capability to produce a comprehensive data base with inputs from all major users of the system. The comprehensive data base will encourage the wider use of the MPLDS.

Before concluding the discussion of land title uses of the network MPLDS, it should be noted that a number of local government offices, in addition to the recorder, are involved in the title record process. These offices also can be expected to provide input and use the MPLDS when it is implemented. These offices include the county treasurer, clerks of the various courts located in the county (including probate and Federal courts), and the county clerk.

In addition to the county government offices, many private users involved in the title evaluation process will be major users of the title record component of the MPLDS (see table 7-5). These users will include buyers, sellers, abstracters, title insurers, attorneys, real estate brokers, mortgage lenders, and mortgage insurers.

### Surveying

A major area that can be expected to be an important data source as well as a major user of the networks MPLDS is surveying. As used here, surveying includes all activities that are used to determine the shape, size,

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<sup>41/</sup>Dane County, Department of Administration, Real Estate Records Management System, February, 1979.

and location of land parcels and survey monuments relatable thereto, by using linear and angular measurements and applying the principles of geometry and trigonometry. Thus, surveying uses of the network MPLDS will range from the highly precise first-order control network down to property surveys of individual land parcels.

For instance, the National Geodetic Survey (NGS) currently is refining the first-order control network used in North America. When completed in the 1980's, the planned network "is expected to produce relative accuracies of one part in one million."<sup>42/</sup> This first-order control system is extensive as well as precise, since it covers all of North America, including Canada and Mexico.

At the other end of the scale, in terms of scope and precision, is the individual property survey. In between lie survey uses ranging from second-order monument densification programs to project surveys for highways, similar public works projects, and private construction projects (e.g., pipelines).

Several generalized uses of survey data will be possible with the network MPLDS. For instance, the location of individual monuments, points, and lines can be stored in a format to facilitate their use. Once accuracy and precision standards are in place, computerized manipulation of survey location data can be used for detailed analysis of particular projects. Also, uniform recording of survey data will facilitate the rectification of a wide range of data, from individual property surveys to highway project surveys.

The uses of the survey data component of the MPLDS will depend on the extent of coverage of MPLDS throughout the country. For instance, surveyors at the local level can be expected to use the system as soon as it is implemented in a single county. State agencies would join as users as soon as regional and State groups of counties were operational.

Ultimately, the network MPLDS should result in at least two significant improvements in regard to survey data. First, system standards for uniform recording and storage of survey data should help improve the accuracy of surveys. Certainly the accuracy of surveys in relation to each other (e.g., reduction in gaps and overlaps) can be expected to improve. Second, the widespread, easy availability of survey data should reduce the need for wasteful duplicative property surveys that often are required under the current system. If such a system had been available and used during the construction of the interstate highway system, the survey work carried out as part of that project would be available. Because it is not available, wasteful duplicate surveys often are required when alterations are made in the highway system itself, as well as when new projects are developed adjacent to the interstate system.

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<sup>42/</sup>Orin W. Williams, "The NAVSTAR Global Positioning System and a First-Order Framework for Information Systems," in Proceedings of the Land Records Symposium, University of Maine at Orono, 1976, p. 70.



## Mapping

Closely related to the surveying uses are mapping uses. Maps are, after all, merely spatial displays of data of various kinds, including data generated as part of the surveying process.

Specific uses of mapped data range from small-scale (1:250,000) land use cover maps to large-scale (1:500 or 1:1000) property maps displaying individual ownership parcels (see table 7-5). Currently, there is a wide range of maps, prepared at various scales for various uses, in existence. The typical situation is for each agency or user to collect data, compile maps, and maintain them for a particular use for which they are responsible.<sup>43/</sup> The obvious waste in the current system, due to duplication and limited applicability of data for alternative uses because of inappropriate scales, is one of the reasons that mapping uses will be a major beneficiary of the network MPLDS.

Mapping activities will serve two major functions in the network MPLDS. One, substantial amounts of data currently available on maps can be placed in the MPLDS data base by use of digitization technology. Two, the useability of most land data is measurably enhanced if graphic display of specific data are possible. The network system has both of these capabilities.

In digitizing data from a map, the coordinates of two or more known locations on the map are programmed into the digitizer (also known as a coordinatograph). Then a cursor can be used to touch each point for which specific data are to be entered into the data base. Digitizers can be used alone or in conjunction with other data entry devices such as keyboard terminals. Digitizing systems also are available with capabilities to automatically trace lines and polygons for data entry.

The spatial display of output is the second major use that mapping capabilities of the network MPLDS will provide. For instance, Weaver describes a virtual map system by which map images can be displayed on a pen plotter or other graphic display device.<sup>44/</sup> Specific output needs can be satisfied by altering the area to be included, the boundaries, scale, features, and detail of the material to be displayed. This capability permits retrieval of only the data needed and also provides for the display of these data in the most useable form and format.

Users of the mapping capabilities of the network MPLDS range from resource planners to owners of individual land parcels. While some of the MPLDS users have current access to similar data, the network MPLDS will provide the needs of many new mapped data users as well.

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<sup>43/</sup>There are exceptions to this general rule--for example the topographic map series is compiled and maintained by the U.S. Geological Survey, covering most parts of the United States and suitable for a variety of uses.

<sup>44/</sup>F. M. Weaver, "Virtual Mapping: A SIG GBF Working Paper," in Urban and Regional Information Systems: Perspectives on Information Systems, papers from the Eleventh Annual Conference of the Urban and Regional Information Systems Association, Chicago, Ill., 1974, pp. 250-64.



For example, the Swedish land data banks can produce a variety of outputs that have been used by regional and local planners for the past several years.<sup>45/</sup> Outputs include dot maps, isarithmic maps, and hatched polygon maps.

The Forsyth County Land Record Information System also is making extensive use of digitized input and graphic output. Campbell describes the input and display capabilities of the Forsyth system as follows:<sup>46/</sup>

The starting point for the system is the complete coverage of the county by high-quality ortophotographic maps. Onto these maps will be plotted land ownership data taken from existing tax maps, recorded plats, and deed descriptions, and this information will be entered in a computer from which line maps can be automatically plotted. Once the parcel boundaries are ascertained, unique parcel identifiers will be assigned. The parcel identifier numbers will reflect the geographic location of the approximate centroid of the parcel in terms of the state plane coordinates.

Once the map information is prepared and the parcel identifiers have been assigned, all manner of physical, economic, and social information can be computerized for each parcel. Appraisal information, population trends, traffic patterns, soil types and flood plain hazards are only some of the types of information that can be developed from the system. Because of the geocoding of the parcel identifiers, an important attribute of the Forsyth County system will be the ability to produce maps by computer of areas, of possible rights-of-way, and of areas of environmental concern. All of this information will be available from computer terminals in the office of the register of deeds, the tax offices, planning offices, other county and municipal offices, and private business and law firms may rent computer terminals for their own use.

A comprehensive mapping program makes up one of the four phases of development of the Land Registration and Information System Program in the Maritime Provinces of Canada.<sup>47/</sup> The system builds on the detailed surveying phase and produces a variety of map products to serve system users.

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<sup>45/</sup>Bengt Rystedt, "The Swedish Land Data Bank--A Multipurpose Information System," in Olof Wastesson, Bengt Rystedt, and D.R.F. Taylor, Computer Cartography in Sweden, Supplement No. 2 to Canadian Cartographer, Volume 14, 1977, p. 38.

<sup>46/</sup>William A. Campbell, "Modernization of Land Records Systems in North Carolina," in MOLDS, supra note 6, p. 184.

<sup>47/</sup>Land Registration and Information Service, New Approach to Land Registration and Information, Council of Premiers, circa 1976, pp. 18-25.

Almy indicates that Alameda County, Calif., has one of the most successful computerized property ownership map systems in the United States.<sup>48/</sup> After establishment of a ground control network, data were gathered from existing data sources such as assessor maps, deeds, and surveys. Metes and bounds descriptions were computerized and verified. The automated mapping system is designed to permit users to both generate hardcopy maps as well as view the mapped data on cathode ray tube displays. Although developed and housed by the assessing office, use by agencies such as criminal justice, health, welfare, census, and public works is expected when the system becomes fully operational.

### Land Use

Two major categories can be used to classify the broad range of data that are included as part of the land use capability of the network MPLDS. These categories include status data and planning data.

Status data describe what is at a particular time. For example, status data include descriptions of current landownership patterns (e.g., class of owner, size of parcel, etc.), patterns of current land use (e.g., residential, agricultural, or specific crops), land capability patterns (based on soil classes, moisture available, etc.), land cover patterns (plant species, forest cover, etc.), and wildlife patterns (i.e., species monitored in given areas).

Much land use status-type data currently are compiled. In addition, many more status data are collected but never placed in a usable form. The major difficulty arises because our capability to capture the data (e.g., using remote sensing technology) greatly exceeds our capability to manipulate and display them.<sup>49/</sup>

The second major category of land use data can be classified as planning data. This category is the result of analysis of status data by planners and the creation of a plan of what could, should, or might result in the future. As such, planning data may include status data, usually subjected to analysis and assumptions, to estimate or suggest the future direction for a specific area. For instance, physical data (i.e., status) often are combined with socio-economic data and policy objectives to produce a land use plan. A major deficiency of most systems for planning land use is the lack of routine update capability.

The network MPLDS will provide a data base that will serve planning uses better and with much less duplication of data collection and stored data

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<sup>48/</sup>International Association of Assessing Officers, supra note 27, pp. 316-17.

<sup>49/</sup>Efforts of the U.S. Geological Survey to improve the use of remote-sensed data in land use mapping and inventory work are discussed extensively in James R. Anderson, "Land Use and Land Cover Maps and Statistics from Remotely Sensed Data," in Volume 4, No. 4, Remote Sensing of the Electro Magnetic Spectrum, October 1977, Remote Sensing Application Laboratory, University of Nebraska, Omaha.



files than is currently the case. The key factor is use of the parcel-based system, coupled with coordinate identifiers for each parcel. The capabilities of the Swedish Land Data Bank and the planning and administrative uses it serves were reviewed by Larsson.<sup>50/</sup> He stressed the importance of the coordinate parcel identifier and noted how the data from many separate files can be linked, without storage of the data in one location.

Rystedt notes that many types of output useful to the planner are possible when a coordinate parcel identifier is used.<sup>51/</sup> This is true even if it is desirable or necessary to restrict disclosure of certain parcel data. For instance, if standard production of a grid map would disclose data that must be restricted for privacy reasons, grid cells could be automatically combined, base on specified criteria for cell contents ( e.g., three or more reports).

Several land use systems have been developed in the United States, based on a grid system. Generally, they differ from the Swedish system described above in that for the U.S. systems grids usually are established when the system is designed; then the grid cells are coded for each data item. This procedure severely restricts the flexibility (and use) of these land use systems, especially since it is not possible to relate parcel ownership to such systems. This limited capability is to be expected, since the U.S. systems typically have been designed for a single purpose.

The reason for the tendency toward single-purpose land data systems is related largely to the viewpoint of and the accounting and budgeting framework within which the system developers are operating. That is, the need for an improved system of handling land use data may be apparent to the planning office. The system developed for the planning office is designed to fill its needs at minimum cost.

The system designers may recognize that slight alterations would permit the system to serve additional uses besides the planning office. However, departments usually are constrained by their budget. Therefore, if the development of multiuse systems is to become a reality, direction must come from a higher level of administration capable of providing a broader view (e.g., land data needs of a county, region, or State, etc.).

Despite the many limitations of single-purpose land data systems, a number of States have developed such systems for handling land use data. A review of several of these systems is useful to demonstrate the substantial data needs that exist in the planning area, data needs the network MPLDS could fill (see table 7-6). The network MPLDS could better serve these needs since the data base will be regularly maintained, an attribute that does not exist for most of the single-purpose systems.

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<sup>50/</sup>Gerhard Larsson, "Social and Administrative Functions of a Cadastre: Environmental Studies Planning and Administration," Volume 29, The Canadian Surveyor, No. 1, March, 1975, pp. 78-79.

<sup>51/</sup>Rystedt, supra note 45, p. 37.



Table 7-6--Typical state land use planning  
data systems

<u>System</u>	<u>Characteristics</u>	<u>Capabilities--Uses</u>
LOIS (New Jersey)	<ul style="list-style-type: none"> <li>= 3.5-acre grid data input cell</li> <li>= 7.0-acre acre grid data output cell</li> <li>- tax parcels identified by State Plane Coordinate centroid</li> </ul>	<ul style="list-style-type: none"> <li>- Merge data from several sources</li> <li>- Provide tabular and graphic data display</li> <li>- Aggregate and display data for user-designated areas.</li> </ul>
MAGI (Maryland)	<ul style="list-style-type: none"> <li>= 91.2-acre grid cell</li> <li>- Line printer output</li> </ul>	<ul style="list-style-type: none"> <li>- Data aggregation</li> <li>- Variable weighting possible</li> </ul>
Minnesota	<ul style="list-style-type: none"> <li>= 40-acre (1/4x1/4 Federal rectangular survey sections)</li> </ul>	<ul style="list-style-type: none"> <li>- Inventory of about 20 location, land use, and land capability items</li> </ul>
New York	<ul style="list-style-type: none"> <li>= 247-acre (100 hectares) grid cell</li> </ul>	<ul style="list-style-type: none"> <li>- Inventory of 135 land use and natural resource items</li> </ul>
UDIS (Fairfax County, Va.)	<ul style="list-style-type: none"> <li>- For single county only</li> <li>- Data for each of 155,000 tax parcels</li> </ul>	<ul style="list-style-type: none"> <li>- 27 descriptive data items</li> <li>- Includes forecasting function, to estimate development in next 1 to 5 years</li> </ul>

Typical of the single-function data systems that have been developed in the United States are land use planning systems in New Jersey and Maryland. New Jersey has developed a Land Oriented Information System (LOIS) that incorporates "a framework of data, software, and electronic data processing hardware designed to facilitate access to data which describes either the natural features of a specific portion of the earth's surface or activities occurring thereon."<sup>52/</sup> The system is designed primarily to serve planning needs at the State level. LOIS has the following capabilities:

<sup>52/</sup>New Jersey Department of Community Affairs, LOIS, Land Oriented Information System, a Data Resource for Planning, November, 1973, p. 1.

1. Merge data from several sources for use in inventory, analysis, and modeling activities.
2. Provide data display in both tabular and graphic formats.
3. Aggregate and display data for any geographic area selected by users.
4. Respond rapidly to requests
5. Accommodate changes in the planning function and the related demand for information.<sup>53/</sup>

Landownership data are included, with each tax parcel being assigned a centroid State Plane Coordinate (SPC) parcel identifier. In addition to the parcel data, data on soils, underlying geology, water courses, and utility lines are coded on a 3.5-acre grid system. Using the coordinate system, all data in the system can be linked and/or displayed graphically. Printer limitations restrict printer output to 7-acre cells. In essence, many of the basic attributes of the network MPLDS are included in the New Jersey land use system.

Maryland also has developed an automated State planning system, the Maryland Automated Geographic Information (MAGI) system.<sup>54/</sup> Like the New Jersey system, the MAGI system is designed to produce output on a grid cell basis using a line printer. The MAGI system differs from LOIS in at least three important respects. First, the MAGI cells are much larger, 91.2 acres. Second, input of data appears to be limited to computer-readable maps. Three, output from the MAGI system is produced by a complex digital overlay concept.<sup>55/</sup>

The output technique is an automated procedure used to overlay data variables and weight them according to specified values related to the capability and suitability of the land to support various land uses. Because of the large cell size, the output is not suitable for many kinds of analysis that LOIS can provide. Also, this cell size means that digitized input must be less precise, due to "averaging" over the 91.2-acre cell for many items. The MAGI system does rely on the Maryland SPC system for standardized referencing of all mapped data input. The most serious deficiency of MAGI, when compared with the ideal network MPLDS, is the lack of a firm relationship between ownership and land use on individual ownership parcels.

New York and Minnesota both have land data systems similar to those found in New Jersey and Maryland. Both are based on grid cells for basic units of data, usually compiled from aerial photos and other data available in State and county files of operating departments. New York uses a 247-acre (1 km<sup>2</sup>) cell as the basis for the inventory of 135 land

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<sup>53/</sup>Supra note 52, p. 2.

<sup>54/</sup>Jack Dangermond, "A Summary of the Maryland Automated Geographic Information (MAGI) System," in URISA, supra note 28, pp. 167-181.

<sup>55/</sup> Supra note 54, p. 171.



use and natural resource classification items.<sup>56/</sup> A similar set of 19 data elements concerning land location, use, zoning, capabilities, etc., is available for each 40-acre (1/4 x 1/4 section) parcel in Minnesota.<sup>57/</sup>

Another example of an automated land data system for planning purposes is the Urban Development Information System (UDIS), in use in Fairfax County, Va. The UDIS system contains much more detail than the State planning systems discussed above. Two types of land use planning information are provided by the system.<sup>58/</sup>

First, an inventory containing 27 descriptive items of data is available for each of the 155,000 parcels of land in the county. These data include characteristics of buildings as well as characteristics of the land itself. The second type of information provided by the system is estimates of change that will occur, in terms of new development, over the next 1 to 5 years. Basic input to this forecasting function is provided by a "series of computerized data files which contain data describing the several steps in the development approval process, i.e., building permits, site plans, building starts, building completions and rezoning requests."<sup>59/</sup>

Two relatively early efforts, in Washington, D.C., and Alexandria, Va., also were based on the ownership parcel.<sup>60/</sup> The Washington, D.C., system used an automated assessment file as a base. Several items were added, although the entire file was constructed from public records. It served a variety of uses of local government, mostly related to planning and program evaluation.

The Alexandria, Va., system also was constructed around a parcel file, although the data base included a broader range of data (i.e., from many departments). The Alexandria system was used for a broader range of projects, although most were related to planning or analysis of a particular program or problem situation. Both the Washington, D.C., and Alexandria systems suffered from an apparent lack of commitment to keep the data files up to date. Also, these two systems were handicapped by available technology at the time of development (i.e., mid-1960's) that required all data be compiled in a single file at one location.

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<sup>56/</sup>Center of Aerial Photographic Studies, New York State Land Use and Natural Resources Inventory Report (Ithaca, N. Y.: Cornell University, 1968), p. iii.

<sup>57/</sup>Minnesota Department of Administration, Information Systems, Newsletter 2, (March 1971), p. 2.

<sup>58/</sup>John L. Hysom, Jr., "The Urban Development Information System--A Land Use Decision-Making Tool in Fairfax County, Va.," in URISA, supra note 44, pp. 43-56.

<sup>59/</sup>Supra note 58, p. 43.

<sup>60/</sup>A more detailed discussion of the Washington, D.C., and Alexandria, Va., land data system can be found in Moyer, supra note 13, pp. 132-141.



The Alexandria and Washington D.C., system were clear demonstrations of the need for parcel data, particularly by planners. With the increased planning requirements of many federally sponsored programs, and the increased flexibility of distributive data processing, it can be expected that planners will be a major user (as well as data provider) of the network MPLDS.

### Regulating

Several regulation activities can be expected to be major uses of the network MPLDS. These activities include zoning, subdivision regulation, permit issuance, housing inspection, and facility location (e.g., power plants).

As in the case with land use functions, regulating functions can be expected to provide substantial amounts of data to keep the data base up to date, as well as requesting output information needed to carry specific functions. For instance, data on housing code violations would be inserted into the MPLDS as a result of the inspection function. Later, as part of the enforcement (of housing code violations), the same data would be retrieved from the MPLDS. This retrieval could be automatic, with the printout of a listing, after a preselected period of time. The list could then be used as guide for the reinspection process. The results of the reinspection could be added to the MPLDS, updating the file for code violations corrected. The MPLDS also could serve the needs of any court action that might be required, due to noncompliance, regarding corrective actions the owner is required to take.

The zoning function is another major regulation function that the MPLDS will serve. For example, all zoning changes would be entered into the data base. Violations of zoning ordinances, by date, could be entered into the system. Followup lists for reinspection could be generated automatically. Similar lists could be operated for inspections required to assure that setback and other requirements are met. Zoning data could be linked to other files, such as septic tank permits, percolation test results, and other pertinent data.

During the last several years, there has been an increased need for better flood plain zoning data. This need is the result of regulations of the Department of Housing and Urban Development that tie flood plain zoning to the availability of Federal flood insurance. This requirement means that, to qualify for the Federal program and protect individual landowners, local government officials must be able to accurately define the 100-year flood plain boundaries. Unfortunately, current record systems often are not able to produce these needed data.<sup>61/</sup> The network MPLDS will have the capability of identifying which parcels, and even parts of parcels, are within a given flood plain zone.

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<sup>61/</sup>This existing deficiency in Wisconsin is reported by Larsen, supra note 2, p. 2.

The regulating of subdivision activities, whether by certified survey of two or three lots or by platting of plats containing hundreds of parcels, also is an important function of local government. Also, many State governments provide guidance and/or additional regulations that require uniform compilation of data for analysis and regulation. The network MPLDS will provide a comprehensive data base for the decision of State and local administrative personnel. The MPLDS will permit the coordination of data that often are so scattered or inaccessible they cannot be used in the decisionmaking process. For instance, data on soils, erosion potential, suitability of each lot for septic systems, and proportion of subdivided area that is prime agriculture land are examples of these kinds of data.

Several factors have led to the need for a more extensive data base for facility location decisions. First, there is a higher level of environmental awareness in the population generally than has been true in the past. Second, much of the technology and many of the related institutions are much more complex (e.g., nuclear plants). Third, government regulations, particularly those requiring the preparation of environmental impact statements, require a much more extensive data base for support.

Work by the Environmental Awareness Center at the University of Wisconsin demonstrates the use of network MPLDS for activities such as the determination of highway location. A technique using computer technology, coupled with map overlay techniques, was used in the study of a proposed interstate highway corridor.<sup>62/</sup> The I-57 Corridor Selection Study used existing map data where possible. However, extensive primary data collection also was necessary, due to wide variation in formats, scales, and consistency in existing data. Once the data base was completed, however, it provided a very powerful tool for the evaluation of alternative routes and the selection of an optimal corridor for the highway. The data base proved useful not only to policymakers and decisionmakers, but to general citizen groups as well. If a network MPLDS had been in place, the data base necessary for this corridor study would have been available immediately. Therefore, results could have been produced faster and at considerably less cost. Also, the data base would be available to assist in the evaluation of other similar projects and problems as they arise.

A number of user groups can be expected for the regulating capabilities of the network MPLDS. For instance, government officials responsible for zoning and subdivision regulations will be major users. Also, officials responsible for environmental regulations, such as septic systems, sewerage systems, flood plains, shorelands, wetlands, etc., also will use the MPLDS extensively.

Buyers of property, as well as title examiners, also can be expected to make extensive use of the MPLDS. They will want information on what activities

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<sup>62/</sup>Phillip H. Lewis, Jr., "Faculty Land Use Problem Definition Seminar: Data Needs and Data Manipulation," Working Paper 8C, Institute for Environmental Studies, The University of Wisconsin-Madison, December, 1972.



are permitted on the property that is being acquired, as well as specific restrictions that currently exist. Information on surrounding properties as to permitted uses and specific restrictions also will be used by buyers and lenders.

Finally, State and local administrations and policymakers can be expected to be major users in locating various facilities such as power plants, highways, and pipelines. Being able to precisely identify the location of such facilities in relation to a wide range of physical data will greatly enhance the quality of the decisionmaking process.

### Public Land Management

Another use and capability that the network MPLDS fulfills concerns the management of public lands. Because of the large proportion of public land owned by the Federal Government (34 percent of all lands, 85 percent of all public lands), a great majority of the use of the MPLDS can be expected to involve Federal agencies.<sup>63/</sup> However, because State, county, and municipal governments own 136 million acres, State and local governments can be expected to be major users of the data base the MPLDS provides. Examples of several Federal and State needs and efforts to improve the land management data base exemplify the potential uses in this area.

For instance, the U.S. Forest Service would welcome a MPLDS with the capability to accurately maintain records concerning the boundaries between parcels. The Forest Service administers 187 million acres of public lands that involve 280,000 miles of property boundaries, over 1.1 million property corners, and tens of thousands of land parcels.<sup>64/</sup> Therefore, a system capable of accurately maintaining the parcel boundary file would produce substantial benefits to the Forest Service in savings of personnel and time, and in reducing the number of conflicts that require lengthy court proceedings.

The need for an improved data base also is exemplified by the efforts of Federal agencies to improve the land data base and assure that the needs of users are served. The U.S. Geological Survey (USGS) sponsored a recent study of the utility to State users of a selected group of Federal land data products.<sup>65/</sup> The report concluded that Federal land and earth science data production are not now sufficiently responsive to the needs of a new and merging class of data users at the State government level.<sup>66/</sup> The major

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<sup>63/</sup>Gene Wunderlich, Facts About U.S. Landownership, U.S. Department of Agriculture, ESCS, Agr. Info. Bull. No. 422, p. 5.

<sup>64/</sup>D. David Moyer, Multipurpose Land Parcel Data Systems, U.S. Department of Agriculture, Economic Research Service, August, 1974, p. 6.

<sup>65/</sup>Council of State Governments, An Evaluation of Natural Resource Data Products by State Data Users, Lexington, Ky., 1975.

<sup>66/</sup>Supra note 65, p. 1.



criticism of Federal land data programs seems to result from a too-narrow focus of the Federal effort, usually related to the particular program area responsible for its development. This deficiency could be overcome by a network MPLDS that would allow users to tailor the system output to their particular needs. This assumes that general guidelines for formats, accuracies, etc., established by Federal and State governments are adhered to by each county as they provide input to develop and update the data base.

In addition to the State land systems discussed earlier, several States have undertaken substantial land management system programs. Minnesota and Montana are examples of two States with such programs.

Minnesota has developed the Minnesota Land Management Information System (MLMIS) to centralize and analyze data on Minnesota resources.<sup>67/</sup> The primary reason for development of the MLMIS was to develop a computerized data base.

The Minnesota system is operational statewide, using a 40-acre cell as the smallest unit in the system. The cells are based on the U.S. Public Land Survey (i.e., 1/4 x 1/4 sections).<sup>68/</sup>

Thirteen data items (variables) have been recorded for each of the 1.4 million 40-acre cells in the State. These variables range from the township number to land use (i.e., 9 types are coded) to public land ownership (where 50 different types are coded).<sup>69/</sup>

Three ways are used to enter data into the system:

- manual coding of each cell
- digitization
- merging of records with common identifiers

Manual coding is very expensive. Digitization usually requires computer translation to convert polygons produced by the digitizer to the cells in the data base (e.g., 40-acre cells). Merging is done by the computer, used most often in the Minnesota system for entry of State ownership data.<sup>70/</sup>

Output from the MLMIS is most commonly from a standard line printer (i.e., to produce maps, using printer characters). A second output device used is the interactive terminal. Areas 40 x 50 cells can be mapped and analyzed on the MLMIS terminals.

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<sup>67/</sup>Land Management Information Center, Introducing the Land Management Information Center, State Planning Agency, Minneapolis, January, 1978, p. 1.

<sup>68/</sup>For some parts of the State and for several special projects, grid cells of 2.5 acres have been used. Also, a statewide grid of 5 km<sup>2</sup> (10 square miles) also is used on some State studies.

<sup>69/</sup>Supra note 67, p. 3.

<sup>70/</sup>Supra note 67, pp. 3-4.

The Minnesota system includes much data proposed for the network MPLDS. It varies primarily from the MPLDS in that all data are forced into 40-acre cells and the Minnesota system was developed and is operated by the State. However, much of data base would fit the parameters suggested for the MPLDS, since a large proportion of Minnesota's ownership parcels are described in terms of the Public Land Survey. Also, the many uses to which the Minnesota system have been put clearly demonstrate the need for a MPLDS to serve data needs of the local, State and Federal Governments.<sup>71/</sup>

As was the case in Minnesota, the impetus for development of the Montana Geodata System came from State needs in management of natural resources. The Montana system is less inclusive than the one in Minnesota, focusing on the task of computer mapping data collected by State and Federal agencies.<sup>72/</sup> Recent State legislation called for readily available, easily usable data on land use, land inventories, environmental impacts, and utility sitings.<sup>73/</sup> It was concluded that maps and overlays were the most understandable way of presenting these data. Due to the high cost of manually produced map products, the computerized Montana Geodata System was developed.

Among data included in the Montana Geodata System are the following:<sup>74/</sup>

- Administrative boundaries of State, county, and place units.
- Transportation system, including highways, railroads, and airports.
- Utility data on power lines and pipe line routes.
- Geographic grid including all township corners in the State.
- Public landownership data for all national forests, national parks, wildlife refuges, and Indian reservations.

Montana also has developed a statewide information storage and retrieval system for 20,000 water wells. Also, tests have been conducted in pilot areas to study the production of computer-generated maps for:<sup>75/</sup>

- Soils
- Vegetation
- Wildlife
- State landownership
- Federal landownership

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<sup>71/</sup>A detailed discussion of the factors that contributed to the development of the MLMIS, system design, system applications, and application methods is contained in Alan Robinette and Earl Nordstrand, "A Resource Information System Developed by User Applications," in Data Resources and Requirements: Federal and Local Perspectives, papers from the sixteenth Annual Conference of the Urban and Regional Information Systems Association, Chicago, Ill., 1978, pp. 255-267.

<sup>72/</sup>Montana Department of Community Affairs, Natural Resource Computer Mapping Demonstration Project: A Report to the Old West Regional Commission, June, 1977, p. 1.

<sup>73/</sup>Ibid.

<sup>74/</sup>Montana Department of Community Affairs, Montana Geodata System Overview, July, 1978, p. 1.

<sup>75/</sup>Supra note 72, pp. 3-4.



The Montana Geodata System serves many of the public land management needs for Montana. However, the accuracy of the system is severely restricted because of the small-scale (1:250,000) base map used for the program.

Currently, efforts are underway to computerize the land title record system in Broadwater County. This suggests that eventually a system more nearly comparable to the network MPLDS may evolve in Montana. Many of the appraisal and ownership data currently compiled should be transferable to the MPLDS.

### Public Policy Research

The network MPLDS is capable of serving as the data base for a wide range of research concerning public policy. (As defined here, and in the next section, policy research is carried out prior to implementation. Program research evaluates the actual results of government policies after they have been implemented as government programs, i.e., how well did they work?)

It should be stressed that public policy (analysis, decisionmaking, and implementation) are the key issues in Scenarios III and IV studies. Therefore, while foreign investment in U.S. real estate is the key issue in Scenarios I and II, Scenarios III and IV address the more general issue of the lack of an information base to serve as a basis for informed judgments in a wide range of land policy areas. The implications of these general land policy questions for evaluation of both single- and multi-purpose data systems is examined in detail by Warren in chapter 12.

The network MPLDS will provide the most cost-effective way to more clearly define particular resource issues where a policy decision is needed. Also, the MPLDS will provide the base for the consideration of several alternative policies by decisionmakers. For example, the network MPLDS will provide the capability to quickly obtain estimates of the impacts of proposed alternative solutions to a particular policy problem. Answers can be obtained to hypothetical questions by manipulation of data stored in the MPLDS, a capability that is especially important in any process which includes public participation in the planning of public programs. Finally, the MPLDS will improve the quality of the policy that eventually is selected for implementation.

These improved policy research data are needed by Federal, State, and local Governments. All levels of government will find the policy evaluation capability outlined above useful. Also, the system will provide the basis for explanation of the policy to the general public. That is, a clear, concise explanation of the policy to be implemented, the reasons it was selected, and government expectation of the policy would likely result in a clearer understanding and more rapid acceptance of the policy.

Foreign ownership of U.S. real estate is a policy issue under current review. For example, the perceived need for a review of current policy resulted in the initiation of the instant project. Several States also are giving consideration to the possible revision of statutory provisions



restricting amounts of foreign owned land and/or statutory provisions requiring reporting of purchases and sales of U.S. lands by foreigners. Hopefully, the information system that results from this project will improve the information base upon which such policy decisions are made.

Foreign ownership is just one of several ownership policy questions that are certain to receive additional attention in the near future. Data regarding corporate and nonresident ownership also will be subject to policy review. The relationship of these forms of ownership to taxation and soil and water conservation will need to be addressed.

The experience of Canada's Prince Edward Island (PEI) demonstrates some of the benefits of a comprehensive land data system in responding to the needs of policymakers. PEI is one of the three Maritime provinces developing the Land Registration and Information Service (LRIS).<sup>76/</sup> When questions arose as to the amount of PEI land owned by nonresidents and foreigners, the LRIS was able to quickly produce the needed information on current amounts, location, etc., of such holdings. For instance, non-resident landholdings were displayed on a computer-generated map.<sup>77/</sup> Comparable output was prepared concerning foreign owners. The rapid availability of these data to government policymakers was possible only because of the comprehensive data base and retrieval system that comprise the LRIS.

Similar policy questions are likely to continue to arise. For instance, questions of preserving prime agriculture land (i.e., protecting from nonagricultural uses) and increasing the proportion of lands covered by appropriate soil and water conservation measures are two additional measures. Policymakers need data not only on the physical parcel but also on the ownership patterns and related institutions that effect the parcel. Such data will be readily available from the network MPLDS.

Finally, a wide range of policy areas of concern to local and State government will be served by the network MPLDS. These include evaluation and selection of policies concerning such areas as economic development, housing, soil and water conservation, agriculture land preservation, facilities siting, and utility services.

#### Public Program Research

Research regarding ongoing public programs is one final area in which the network MPLDS can be expected to be heavily used. In this regard, policymakers will have access to data that will facilitate the evaluation of numerous government programs. These evaluations will help determine if programs should be continued as is, altered, or terminated.

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<sup>76/</sup>Supra notes 14 and 47.

<sup>77/</sup>Supra note 47, p. 33.

For example, a number of current government programs rely on subsidies and grants to individual landowners. These grants and subsidies are offered as incentives to encourage individuals to act in a manner that government policymakers believe is beneficial to society in general. Subsidy payments to farmers for producing certain crops and payments for setting aside certain acreages are examples of such programs. Based upon presently available data bases and analyses, policymakers have decided that these programs will produce desirable results. However, many policymakers also believe that additional program research would be useful in fine-tuning particular programs.

With a network MPLDS in place, such additional analysis would be possible. For instance, flows of subsidy payments for a particular crop could be analyzed in regard to factors related to the land. Benefit flows by size of parcel, type of tenure, number of farms owned, and other similar factors could be analyzed. This capability likely would lead to more cost-effective programs (i.e., the desired results would be obtained with less expenditure of tax dollars).

The network MPLDS also would be especially useful in regard to soil and water conservation programs. For instance, priorities would be established by each of the 3,000 Soil and Water Conservation Districts in the United States. Data on acres with particular conservation needs, acres in each program, and acres added to the program or treated with a particular practice in any specified time period could be readily compiled. Based upon these analyses, plans as to program priorities could be constructed. This approach also would provide the most cost-effective soil and water conservation program possible. Similar research on programs such as the Bureau of Reclamation irrigation projects (with 160-acres-per-farm limits) would appear useful.

#### SURVEY MULTIPURPOSE LAND DATA SYSTEM (MPLDS)

The discussion thus far has focused on the network MPLDS. This network system, built on the assumption of a government data system in each county, has been described in terms of the structure of the system, the contents and characteristics of the data to be included in the system, and the uses and capabilities of the system. The remainder of this chapter is devoted to a similar discussion of Scenario IV, the national survey MPLDS. Although Scenario IV is a multipurpose system, it does not necessarily serve the same purposes as are served by the network MPLDS. However, capabilities of the survey MPLDS will provide information on the ownership of U.S. real estate by nonresident aliens.

#### Topics Covered

The discussion of the survey MPLDS is divided into three sections: (1) a review of the structural features of the system, (2) a review of the kinds of data included in the system, and (3) a review of the capabilities of the survey MPLDS, in terms of its uses. Where appropriate, comparisons of Scenarios III and IV are made to clarify any differences in uses and capabilities.



## General Structure

The proposed survey MPLDS can be described as a comprehensive nationwide survey. The survey will require the development of a new survey, designed specifically for collection of land-related data for multiple uses. For example, data on FDI in U.S. real estate will be collected as part of a periodic survey that will obtain data for other specific uses as well.

The survey MPLDS can be classified as an active data system, since its operation will require an active role by the Federal Government in the collection, compiling, and reporting of survey results.

The survey MPLDS is a statistical system, since output will be restricted to aggregated data and descriptive statistics on certain characteristics of U.S. land parcels and related matters. This system will not have the capability of reporting data concerning individual land parcels since by design, output is limited to aggregated data. Also, it generally will not be possible to combine data from two or more surveys conducted in a given time period, or to relate data about specific parcels collected in two or more time periods.

State reliability.--It is assumed that the survey MPLDS will be capable of producing statistically reliable results from each State. To provide reliable data for smaller areas (i.e., substate areas) would require a substantial increase in the sample size and result in correspondingly higher costs. Specific incremental cost increases will depend to a large extent on the particular purposes that the survey is to serve.

Federal survey.--The data inputs for the survey MPLDS would be produced by a land data survey conducted by one or more Federal agencies. A single agency would be responsible for actually conducting the survey. To ensure adequate input from all data users, an advisory committee system could be used. This committee would include representatives of local, State, and Federal Government, as well as private users with land data needs. This advisory system, similar to the one used for the Census of Agriculture, would be for the purpose of providing the land data needs of several relevant groups via a single multipurpose survey.

System mode.--The survey MPLDS includes both computerized and noncomputerized components. For example, since a relatively large sample will be required, the processing of the data will be computerized. Also, assuming questions of privacy can be satisfactorily answered, computerized processing will permit production of multiple data tapes to allow further processing by users.<sup>78/</sup>

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<sup>78/</sup> For a detailed discussion of the privacy issue, see chapter 16, infra.



Computerized techniques will also likely be used for sample selection. Once suitable software is developed, ongoing query of the data base via terminals can be expected as a frequent use.

A manual mode of system use also is contemplated. For example, several current surveys produce hardcopy publications as one form of output. Because of the multipurpose nature of the survey MPLDS, it is expected that the production of such publications will continue.

Mandatory participation.--The general nature of the survey MPLDS seems to dictate that participation be mandatory. That is, respondents will be required to provide information requested in the survey, similar to the requirements for national censuses.<sup>79/</sup>

Alternatively, response to inquiries for data from the survey MPLDS could be made voluntary. This is the procedure used by the Statistics Unit of the Economics, Statistics, and Cooperative Services in many of its surveys.<sup>80/</sup> However, it is likely that the use of voluntary input procedures would increase the costs of the survey MPLDS dramatically. Such cost increases could be expected for several reasons.

First, the survey MPLDS is by its very nature a complex system. That is, because data will be collected for a number of uses, a relatively large number of factors must be considered when designing the survey. This complexity also results in the need for a more comprehensive evaluation of nonresponse cases than would be needed for single-purpose surveys. The comprehensive nonresponse evaluation also would increase survey costs. Finally, increased costs can be expected because of the need for larger samples needed to ensure adequate numbers of responses for statistical reliability.

Land included.--As with the network MPLDS, it is proposed the survey MPLDS should include information concerning all private land in the United States. If uniform parcel location systems eventually are adopted for all land (i.e., public and private), much information on public land could be included. These public land data could be compiled both from surveys (similar to those conducted for private lands) and from data currently available for specific aspects of public landownership, management, and use, as well as interrelationships of public and private lands.

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<sup>79/</sup>Title 13, U.S. Code, requires response to the Bureau of Census requests for information (see e.g., sections 142(a) and 191, pertaining to the Census of Agriculture).

<sup>80/</sup>U.S. Department of Agriculture, Scope and Methods of the Statistical Reporting Service, Misc. Pub. 1308, July 1975, p. 19.

### Specific Structure.

It was suggested earlier that the survey and network systems will serve two different sets of multiple purposes. Therefore, it follows that the basic structural building blocks of the survey MPLDS will not be the same as those that make up the network MPLDS. One building block that is similar is the land parcel.

Parcel unit.--The landownership parcel will be the basic data unit in the survey MPLDS. All data will be concerned with attributes of the parcel, activities on the parcel, and characteristics of persons associated with the parcel (i.e., owner, operator, etc.). Therefore, the survey MPLDS will use the same basic unit for data collection as the network MPLDS. The failure of many jurisdictions to have a complete inventory for all parcels may require some alterations in sample design. However, a complete inventory is not as critical in the survey MPLDS as in the network MPLDS. Because of the multipurpose nature of the survey MPLDS, it will be necessary ultimately, if not initially, for data to be available on parcels defined on bases other than ownership (e.g., operating units).

Farming operations are a common instance where the ownership and operating parcels do not always coincide. For example, of the 2.3 million farms farm in 1974, only 1.4 million were operated by full owners; the other 900,000 were operated by partowners and tenants.<sup>81/</sup> Moreover, while full owners made up 63 percent of all owners, they operated only 36 percent (359 million acres, out of a total 1,017 million acres) of all land in farms. Therefore, nearly two thirds of the farmland in the United States is operated by persons who do not own all of the land they operate.

The requirement to incorporate more than one areal data collection unit into the survey MPLDS admittedly increases the complexity of the system. However, it is anticipated that by reducing the number of surveys, costs can be reduced--possibly below current data collection costs. Also, because of the comprehensive, highly correlated data base, the more powerful analysis possible should provide better results.

Map system.--It is anticipated that currently available maps, air photos, etc., will adequately serve the data collection needs of the survey MPLDS. The primary use of maps and airphotos in the system will be for sample selection and contact of individual respondents included in the sample. Since the survey MPLDS is a sample statistical system, it is not necessary that a precise graphic output capability be available (e.g., display of data by parcel not needed).

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<sup>81/</sup>U.S. Department of Agriculture, 1978 Handbook of Agricultural Charts, Agr. Handbook No. 551, November, 1978, p. 26.



Type of sample-- There are two types of samples that could be used for the survey MPLDS, either a probability or nonprobability sample. In a nonprobability sample, the parcels included would not necessarily all have an equal chance of being in the survey. For instance, data for all parcels in the sample might not be collected--for example, due to nonresponse. Also, parcels in the sample are not necessarily representative of the population of all parcels.

Probability samples overcome the weaknesses found in nonprobability samples. Probability samples are selected so that each parcel in the universe has a known probability of being included in the sample. This not only assures a representative sample, but also provides the basis for computing sampling errors.

It seems apparent that the most efficient survey MPLDS sample in terms of quality of data is one based on a probability sample. If the multipurpose use of the data does not result in an overly complex sample, the overall costs of a probability sample also should be lower.

Sampling frame--A sample frame is an aggregation of elements from which a sample can be selected. For instance, in the survey MPLDS, the sample frame would be all the parcels from which a sample could be selected. There are three types of sampling frames that possibly could be used: list, area, and point frame samples. (See Chapter 8 for further discussion of alternative sampling frames for use in a survey MPLDS).

A list frame, as the name implies, is a list of all units in the population about which inferences are to be made. For a survey MPLDS, the list could be of all ownership parcels, or alternatively, of the names and addresses of the owners of all parcels. Use of the latter list creates difficulties in cases of multiple owners of individual parcels. All list samples are subject to problems of incompleteness and being out of date. Also the use of mail to collect data in a nonprobability survey also is subject to a nonresponse bias. The principal advantage of a list sample is the relatively low cost of data collection, compared with other sampling frames.

An area sample is the second type of sampling that could be used for a survey MPLDS. In area frame sampling, the frame consists of an aggregation of identifiable units of land (segments) which can be sampled. One widely used area sample frame was developed by the Statistics Unit of ESCS for collecting agriculture-related data. The ESCS segments (or cells) typically are 160-acre quarter sections or similar sized units of land.

There are three types of area segments used in the ESCS area frame: closed segments, open segments, and weighted segments. The closed segments include all the land within the segment boundaries and exclude all that is outside. Therefore, closed segment sampling would not be applicable for the survey MPLDS, since ownership parcels often would be divided (i.e., excluding the portion outside of the segment boundaries).



The open segment system can include areas outside segment boundaries as well as the area inside. For instance, the ESCS open segment frame includes all land in all farms with headquarters in the segment. All land in these farms is included regardless of whether it is inside or outside the segment boundaries. In a survey MPLDS, ownership parcels could be included if any part fell within the segment boundaries. Alternatively, if only parcels with buildings were to be included, only parcels with buildings within the segment would be included.

The weighted area sample is a combination of the open and closed systems. In a weighted segment, the response is weighted by the proportion of land actually in the segment. For instance, if only 25 percent of an ownership parcel were in the weighted segment, then only 25 percent of the response would be included (e.g., 25 percent of the value, 25 percent of each land use, etc.).

If an area sample is used, the selection of the particular segment system will depend on a number of factors. These include the particular data to be collected and whether the data are to be collected by personal enumeration or mail. The experience of the Statistics Unit of ESCS suggests that an area frame approach is best suited for general-purpose surveys in which personal interviews are used to collect the data.<sup>82/</sup> Thus, as to type of data to be collected at least, an area sample frame is well suited for the network MPLDS.

It should be noted that a survey frame based on points, such as parcel identifier coordinates, appears to be a suitable variation of the area sample frame. That is, a sample could be drawn based on the identifier, which could be related to ownership parcels. Since data collected would be for the parcel identified by the point, it would produce results comparable to the area sample. Use of parcel centroid coordinate identifiers would help assure a uniform sample rate of parcels (or owners). However, because of the larger size of rural parcels, this approach would result in overrepresentation of rural land area.

Sample size.--It is not possible to specify the size of sample a survey MPLDS will require until other factors, such as data content, acceptable level of sampling error, and resources available to conduct the survey, are determined. Dueker has outlined a method for determining an appropriate sample that is particularly useful regarding low-probability occurrences, such as the incidence of foreign ownership of U.S. land parcels.<sup>83/</sup> In this procedure, sample size is based on the expected incidence of occurrence and the variance of the observation. The following is an example of the use of this procedure to determine sample size needed in a survey of parcels concerning foreign ownership:

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<sup>82/</sup>Supra note 80, p. 7.

<sup>83/</sup>Kenneth J. Dueker, Transportation Statistics: Household and Commodities, Research Report No. 3, Data Systems Report Series, Department of Civil Engineering, University of Wisconsin, 1969, pp. 52-74.

Sample size, percent of parcels (national estimates)

<u>Variance</u>	Expected frequency of occurrence (percent)	
	0.5	0.1
1	0.01	0.06
2	0.03	0.16

The above sample size, in terms of percent of all parcels, translates into the following number of parcels:

Sample size, number of parcels (national estimates)

<u>Variance</u>	Expected frequency of occurrence (percent)	
	0.5	0.1
1	10,000	60,000
2	30,000	160,000

Sample size, number of parcels (state estimates)

<u>Variance</u>	Expected frequency of occurrence (percent)	
	0.5	0.1
1	500,000	3,000,000
2	1,500,000	16,000,000

Thus, it is plain that both incidence of occurrence and variance have a substantial impact on sample size. Sample size, in turn, affects cost of the survey. If a cost of \$40 per unit sampled is assumed, the sample to provide State estimates would cost between \$20 million and \$640 million.

Ongoing survey efforts that already exist also provide insights as to the general sample size that survey MPLDS could be expected to require.

In the year following each Census of Agriculture, a Sample Survey of Agriculture is conducted.<sup>84/</sup> This survey provides data for several purposes that are not applicable for inclusion in a full-scale census. The 1964 Sample Survey included responses from about 16,000 places.<sup>85/</sup>

The USDA currently is analyzing data obtained from its Resource Economics Survey. This survey obtained data from about 30,000 landowners concerning the land they owned, as well as related information. While questions concerning landownership by foreigners were included, the preliminary analysis

<sup>84/</sup>For example, see U.S. Bureau of the Census, Census of Agriculture, 1964, Volume III, Special Reports, Part 3, Sample Survey of Agriculture, Washington, D.C., 1968.

<sup>85/</sup>Supra note 83, pp. 7-8.



of results suggests that a larger sample is needed to obtain data on this particular subject. Experience from the Resource Economics Survey and Sample Survey of Agriculture suggest that survey costs of \$50 or more per sample unit can be expected. Almy further discusses the size of samples currently in use for land-related surveys in chapter 8.

Sampling error.--Sampling error is the difference between an estimate based on a sample and the results that would be obtained from a 100-percent census of all units in the population. The use of probability sampling is the basis on which sampling errors are measured. Therefore, the survey design and data included will have an important bearing on sampling error that is associated with data collected by the survey MPLDS.

Precision.--Tolerance specifications and confidence limits generally can be set at any level desired. For example, a decisionmaker may want the sample survey result to be within 5 percent of the complete count result. This parameter is known as a tolerance specification or confidence interval. Moreover, the user might want the results to fall within the above tolerance specification in 99 percent of the cases. That is, he is only willing to risk having a sample result fall outside of the tolerance limits in 1 percent of the cases. Therefore, he specifies the confidence limits at 99 percent.

It should be emphasized that policymakers and other data users are the ones who determine the precision levels. That is, they should decide how much error can be tolerated and the level of risk they are willing to assume in regard to such error. In the Sample Survey of Agriculture discussed earlier, the confidence limit is set at 66 2/3 percent. That is, the percentage given for the tolerance specification for error will be less than the specified amount two-third of the time. Also, the Sample Survey of Agriculture provides the tolerance specification for selected items by type of farm.<sup>86/</sup> This approach would be suitable for the survey MPLDS, in that the varied user groups could evaluate the survey results for their particular use, based on the precision the survey MPLDS provides. It also should be noted that the cost of the survey MPLDS will vary dramatically at different precision levels. Therefore, it is quite likely that precision levels finally selected will depend in large part on the costs of providing such precision.

### Contents

This section describes the data contents of the survey MPLDS. Because of the nature of the survey MPLDS, it is not possible, or advisable, to be as specific about data content as was the case with the network MPLDS (i.e., much of the detail should be left to the advisory committee made up of agency cooperators who will use the system). However, this section sets out the general kinds of data that likely will be included in the survey MPLDS.

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<sup>86/</sup>E.g., see supra note 83, pp. 46-48.



In terms of an initial minimum set of data for the survey MPLDS, two general categories of data are appropriate for inclusion: (1) data currently collected as part of independent single-purpose surveys and (2) data needed by policymakers and other users which are not currently being collected or tabulated.

The following list, while not all inclusive, contains examples of the kinds of ongoing activities that should be considered for inclusion in the survey MPLDS:

<u>Survey</u>	<u>Agency</u>
- Census of Agriculture	Bureau of the Census (Agriculture Division)
- Sample Survey of Agriculture	Bureau of the Census (Agriculture Division)
- Census of Governments (GP-1, GP-2, and GP-31 Surveys)	Bureau of the Census (Governments Division)
- June Enumerative Survey	U.S. Department of Agriculture (ESCS)
- Resource Economics Survey	U.S. Department of Agriculture (ESCS)

Surveys conducted by the Governments Division of the Bureau of Census could provide much of the data suggested for the fiscal cadastre component of the network MPLDS, discussed earlier.<sup>87/</sup> For instance, the Census of Governments relies on secondary sources for some data. Enumerators review recorder and assessor records to obtain a list of recent real estate transfers. From these two offices, the enumerators obtain such data as the names of buyer and seller, parcel identification numbers, and assessed value.

The Census of Governments also collects data directly from buyers and sellers of real estate (in the GP-31) survey).<sup>88/</sup> Data are collected on the kind of property transferred, the selling price, and the type of sale.

It should be noted that much of the data contained in table 7-2 could be obtained for the survey MPLDS, if provisions are made to link data from secondary sources (e.g., via parcel identifiers) with data from the enumeration of individual landowners. These secondary sources could provide data concerning characteristics of the parcel and of the structure if such data are on file.<sup>89/</sup> The experience of the Census of Governments will be of value both in deciding what data should and can be collected and also in designing the sample and collecting the data. The 1977 GP-31 survey included about 185,000 transfers, with responses obtained for 138,000.

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<sup>87/</sup>See table 7-2, supra.

<sup>88/</sup>A copy of the questionnaire is contained in supra note 24, p. 294.

<sup>89/</sup>Supra, table 7-2.

The Sample Survey of Agriculture is a much more comprehensive survey than the Census of Governments surveys discussed above. For example, the 1965 questionnaire consisted of 12 pages containing nearly 200 questions. A combination of mail and personal interview data collection techniques were used. Because the unit of observations in the Sample Survey is a farm operating unit, much of the data collected in these surveys does not seem applicable to the survey MPLDS. However, data on land owned, land rented, and land use could be incorporated into the survey MPLDS, provided a linkage between owner and operator units can be resolved. Also, the experience in sample design and data collection gained over a number of Sample Surveys should be a valuable input to the development of a survey MPLDS.

The U.S. Department of Agriculture, through ESCS, also has substantial data collection experience that should be applicable to the survey MPLDS. The June Enumerative Survey (JES), as its name indicates, is an annual survey conducted each June. Enumerators interview operators and account for all land within about 16,000 area segments. These segments contain over 100,000 separate tracts operated by separate operators. Data are collected for land use, crops, labor and related economic factors, farming populations, and farm numbers.<sup>90/</sup> As to data collected, the JES is subject to many of the same limitations as the Sample Survey of Agriculture. However, the data collection techniques are applicable to those needed for the survey MPLDS, at least in rural areas.

The Resource Economics Survey (RES) is a new ESCS survey that will be continued on an annual basis. The 1978 RES was developed to provide data for a number of land policy areas. Thus, it seems particularly applicable to the discussion of a survey MPLDS.

The RES sample contained 60,000 points that were selected from within 70,000 Conservation Needs Inventory plots. The name and address of the owner of each of the points were obtained as part of another survey conducted by the Soil Conservation Service. Therefore, the 60,000 names and addresses constituted a list sample for the RES.

The RES survey consisted of two parts: (1) a landownership (LOS) survey and (2) a series of follow-on questionnaires to obtain additional data. The latter questionnaires were sent based on responses to screening questions on the LOS. Each of the 60,000 owners was mailed a LOS questionnaire, requesting information about all the land owned in the county in which the selection point was located. Therefore, the data are not related to specific ownership parcels, as would be the case in the survey MPLDS.

The LOS requested data on a number of topics, including tenure of the owner (i.e., in regard to all land owned, rented, etc., in the county,) type of owner (individual or corporate, etc.), zoning, method of acquisition for land acquired in the last 3 years, market value of any land

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<sup>90/</sup>Supra, note 80, p. 21.



acquired in the last 3 years, the market value of owned land, acres farmed, conservation practices on land owned, personal characteristics of owner (age, education, income, etc.,) and citizenship of owner.

It is apparent that the RES data will be useful in a number of land policy areas. However, the survey is concerned to a large extent with landowners, as opposed to ownership parcels. Therefore, analysis will be limited to areas for which data were collected in the RES, since linkage to other data sources (e.g., by parcel number) will not be possible.

The results of the RES indicate the sample was not adequate to obtain data on landownership by nonresident aliens. Only about 40 respondents indicated other than U.S. citizenship. This suggests a different or larger sample frame will be necessary to obtain reliable data on the extent of foreign landownership. The results also suggest that use of a frame that will facilitate coordination with other surveys and secondary sources appears most feasible for compiling data on citizenship and residency of landowners.

#### Capabilities and Uses

The uses and capabilities of the survey MPLDS (Scenario IV) are not as clear as those set out earlier for the network MPLDS (Scenario III).<sup>91/</sup> One reason for the relative vagueness is that the implementation of the survey MPLDS will require substantial changes and innovations, compared with presently used surveys. This is in contrast to the network MPLDS, where many of the basic components are already in place, or if not actually in place, at least well-defined. However, it appears that the survey MPLDS can be developed to include data for as wide a scope of uses and users as decisionmakers require. It will only be necessary that the suggested advisory committee (or other similar group) agree on what is to be included and that resources be available to cover the costs involved.

It should be noted that the survey and network systems differ considerably as to the speed with which they could be fully implemented. That is, the survey MPLDS could be implemented more quickly. The survey system's advantage as to timing is due to the existence of numerous ongoing surveys discussed above. Also, since the survey MPLDS is a survey conducted by the Federal Government, it would require less coordination and change at the State and local government levels.

#### Basic User Considerations

There are several considerations that developers and users of the survey MPLDS should keep in mind. First, it will be necessary to specify most data needs before data collection efforts begin. This requirement makes

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<sup>91/</sup>Supra.



the survey system less flexible than the network system and therefore less capable of dealing with unexpected data demands (e.g., new policy questions that may arise).

In general, the survey MPLDS will be able to provide a sound foundation as to status data, but will be relatively weak as to transaction data. This characteristic is due to the sample system that is assumed, which will not be capable of providing output data on all parcels with a given characteristic or linking data collected with a specific parcel of land.

The survey MPLDS probably will be the better system (compared with the network system) in compiling and analyzing data about landowners. This strength is due to the strict parcel orientation of the network system and also to presumed superiority of the survey system to deal with owner data in general and multiple-owner data (of a given parcel) in particular.

Consideration of the basic differences between statistical and intelligence systems also is important. For example, the survey MPLDS, which is a statistical system, will not be capable of providing data about the transfer or assessed value of a particular land parcel. On the other hand, the survey MPLDS will be well-suited for providing data for assessment equalization and assessment-sales price ratio studies.

#### Differences Between Survey and Network MPLDS

A brief comparison of the specific capabilities of the network MPLDS, set out earlier, with the survey MPLDS may be useful.<sup>92/</sup> The survey MPLDS generally will not provide the user needs specified for assessment, land title, surveying, and mapping uses. These deficiencies are related to the sample approach to data collection and the lack of parcel specificity in the survey MPLDS. Exceptions to the general rule include assessment equalization mentioned earlier.

Many uses of land use data can be satisfied by the survey MPLDS. This is particularly true for policy analysis involving land use status data. It does not appear that data needed for planning specific areas will be available, due to the use of sample survey techniques and generally providing data only at the State level.

Regulating data needs will not be provided by the survey MPLDS, insofar as they require parcel-specific data. Survey system data should be usable to evaluate such items as level of compliance with existing regulations and the need for additional enforcement personnel.

Many public land management uses should be served, provided the particular use does not require parcel data. Fulfillment of these data needs is naturally contingent on the inclusion of publicly owned lands in the survey MPLDS.

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<sup>92/</sup>See table 7-5, supra.

The survey MPLDS should provide data for all national and State-level public policy and public program research. For instance, because of the sample survey process and collection of data at uniform time intervals, it will be possible to design questions to collect the precise data needed for a particular analysis. The major restriction will be the limitation of not being able to construct time series data after the fact. That is, new items added to the survey MPLDS will not have comparable data available from previous MPLDS surveys. Also, the practical limits of survey cost and respondent burden will be an ongoing constraint.

### Expected Utilization

One group of users the survey MPLDS should be able to satisfy is those using the many ongoing surveys collecting land-related data. Several of the operating prototypes discussed earlier, such as the Census of Agriculture, Census of Governments, the June Enumerative Survey, and the Resource Economics Survey are examples of ongoing efforts collecting data that are used for several purposes. One major alteration that will be required to convert these ongoing systems to a true survey MPLDS is to include the urban component in the scope of the survey.

In addition to the various multipurpose surveys that are currently being conducted, the data needs of a number of single-purpose surveys and systems also could be provided by a survey MPLDS. These single-purpose surveys and systems include the periodic Conservation Needs Inventory, the Bureau of Land Management 1601 Planning System, and special foreign landownership surveys that recently have been carried out by several Federal agencies. These foreign ownership surveys have been conducted by the General Accounting Office (two related surveys), the State Cooperative Extension Services, and the Agricultural Stabilization and Conservation Service, USDA.

It should be emphasized that a major benefit of the survey MPLDS will be the more complex analysis that will be possible for a wide range of land policy questions, compared with the single problem and single function data collection approach now used. This increased value of information systems, with a corresponding increase in information output,<sup>93/</sup> is the ultimate payoff from MPLDS, whether a network of local systems or a federally conducted survey.

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<sup>93/</sup>Information is used here in it's communication theory sense (i.e., the less uncertainty that exists, the more information is available). It also follows that the more information alternatives exist (i.e., more messages that could be sent) the more information exists, in a quantitative sense.

This concludes the discussion of the two MPLDS, the network approach covered in the first part of the chapter, and the survey approach in the latter part of the chapter. The purpose of these descriptions is to provide a benchmark for the feasibility evaluations which are contained in chapters 10, 11, and 12. The intent has thus been to provide a basic understanding of each of the two MPLDS so that they may be compared with the single-purpose systems discussed in Scenarios I and II of this study.



Chapter 8  
CURRENT LAND RECORD SYSTEMS  
IN THE U.S.

Richard R. Almy\*

INTRODUCTION

This chapter examines existing land record systems in the United States. It focuses on the nearness of existing systems to the model systems presented in chapter 7 and on the readiness of existing systems to participate in the national network of multipurpose land data systems envisaged in Scenario 3. This chapter also examines currently conducted surveys in terms of their similarity to the survey(s) envisaged in Scenario 4.

At the outset, it is helpful to review some of the key terms that will be used in this chapter. A land record system is broadly defined as an ordered and comprehensive assemblage of facts, principles, and methods designed to do some combination of the following: gather, describe, code, edit, enter, organize, maintain, secure, retrieve, present, and analyze information and data pertaining to the ownership of, physical characteristics of, and events/activities occurring on all land parcels in a given area, over time, and at any point in time. For the purposes of this chapter, the terms "land record system" (LRS) and "land data system" (LDS) are synonymous.

A land record system capable of doing many of the things implied in the definition of an LRS also would be capable of serving more than one purpose (e.g., assessing, conveyancing, land-use planning, and the like). Such a multiple purpose land record system will hereafter be referred to as a multipurpose land data system (MPLDS). It is not necessary to specify here which purposes an MPLDS can serve except to note that the specifications of an MPLDS set out in chapter 7 require that the purpose of monitoring foreign investment in real estate be addressed by the MPLDS.

A land parcel, in turn, is defined as a contiguous area of land described in a single description or as one of a number of lots in a plat; separately owned, either publicly or privately; and capable of being separately conveyed.

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\* /Research and Technical Services Department, International Association of Assessing Officers.

It seems clear that nowhere in the United States does a prototype MPLDS, as defined in chapter 7, exist. However, two distinct sets of rudimentary land record systems exist in the United States: those of recorders of deeds and those of assessors. Although the basic characteristics of both types of systems are determined by State statute, numerous legal and extra-legal variations exist. Moreover, the status of the various land title recording and assessment systems is changing over time as statutes, administrative practices, and, particularly, information-processing technologies change. Thus, United States land record systems are characterized by extreme diversity, and it is inappropriate to regard them as constituting a monolithic "U.S. land record system." Equally important, the development of multipurpose land record systems is in its infancy.

The question remains: can a national MPLDS be feasibly forged from the links of the various State and local land record systems? The answer to this question lies, in part, in the standardization in and the intrastate and interstate compatibility of existing land record systems. This chapter focuses on these aspects of existing land record systems.

The discussion of land record systems begins with a section on land title recording systems. Next assessment record systems are discussed. Since assessment record systems more nearly approximate the model system, such key elements of a national MPLDS as computerization of assessment records, standardization of parcel identification systems, property ownership mapping, and standardization of codes for property use and other characteristics are included in the discussion. In addition to the more comprehensive land title recording and assessment record systems, numerous other land record systems exist or are being developed. Disregarding the requirements of monitoring foreign investment in real estate, comparatively few of these systems are truly multipurpose systems. However, the more interesting or promising of these systems are discussed in the section on existing multipurpose land data systems. The discussion of land record-related surveys follows. The chapter concludes with a discussion of readiness, benefit/cost, and other administrative issues as they pertain to a national MPLDS.

#### LAND TITLE RECORDING SYSTEMS

A typical land title recording system in the United States is a register of evidence of title (e.g., copies of deeds and other documents). As described in chapter 7, access to individual documents usually is obtained by searching alphabetical indexes of the names of grantors and grantees or by searching a tract index, noting the locations of the documents of interest in the register, and reading them or obtaining copies of them. The location of a particular document in the register often is indicated by a numerical identifier that refers to the appropriate volume and page of the register. Other times, the reference is a document number.



Land title recording typically is a function of county government, except in three New England States (Connecticut, Rhode Island, and Vermont), in which it is a function of city and town governments. Hence, there are about 3,000 land title record systems organized on a county basis, and about 500 organized on a city or town basis. Land title recording may be the responsibility of a separate, often elected, official (e.g., recorder, register of deeds) or the responsibility of the county clerk, city clerk, or other official with additional duties.

There appear to be no estimates of the number of records or documents contained in land title recording systems, although estimates of the annual number of transfers of real property range between 4.5 and 8.1 million.<sup>1/</sup>

### Modernization

Apart from an increasing use of photocopy and miniaturization equipment to process and store transfer records, land title recording offices have been slow to modernize their operations. Constructing a "chain of title" remains a tedious process which has given rise to a number of private, more efficient land title recording systems and also to congressional concern about high closing costs.

According to one estimate, obtaining an abstract of title for every property and building a data base would cost about \$100 per parcel.<sup>2/</sup> However, the computer storage capacity required for land title records would exceed the capacity required for all other systems. Grantor-grantee and other indexes, however, can be more easily computerized.

There are additional problems to be overcome if a land title recording system is to be integrated into a MPLDS that is capable of monitoring foreign investment in real estate. As noted in chapter 7, the MPLDS scenario assumes that the system will be capable of providing status as well as transaction data. However, the traditional function of most land title recording offices has been only to file and to provide access to documents that contain information on specific transactions. Most of the

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<sup>1/</sup>Perhaps the best source of statistics on land title recording systems is: U.S. Bureau of the Census, Land Title Recording in the United States: A Statistical Summary, Series SS No. 67 (Washington, D.C.: U.S. Government Printing Office, 1974). Land Title Recording reports the findings of a survey of real estate transfer records made in preparation for the 1972 Census of Governments and contains a selected bibliography. A similar survey was made in conjunction with the 1977 Census of Governments. The results of that survey have not been published, however.

<sup>2/</sup>Hilary Lerner, Feasibility of Computerized Land Title Search in Fairfax County (Fairfax, Va.: Fairfax County, Office of Research and Statistics, 1975; distributed by National Technical Information Service), p. 28.



information itself cannot be independently retrieved. Of course, land title registration systems can be said to provide information on the ownership "status" of each parcel. Such systems, however, typically do not contain the additional information that would be needed for sorting parcel records to provide meaningful information on landholdings, land use, value, and the like. Such additional information is more likely to be contained in assessment records.

Parcel identifiers can, of course, serve as the link between land title and assessment files. It is important to recognize, however, that unless the land title record system contains an abstract of title for each current parcel or is a land title registration system, there often will be no basis for matching assessors' parcel records with land title records. Assessment systems primarily contain information on the current "generation" of parcels (e.g., legal descriptions, descriptions of the physical characteristics of parcels of land and the improvements on them, some information on how parcels are used, estimates of value, and some information on ownership, particularly the names and addresses of taxpayers). Land title recording systems, in contrast, contain different information about the current "generation" of parcels (e.g., legal descriptions and all recorded ownership interests--that is, the nature of the interests and who possesses them) as well as "genealogical" information on past and extinct legal descriptions and ownership interests. Moreover, counts of populations of the current generations of parcels in land title recording and assessment systems often will not be equal. Retrospectively assigning parcel identifiers and revising ownership maps would be a practical impossibility. Thus, land title and assessment records cannot be easily matched or merged.

Therefore, despite the problem of processing a growing number of transfers and the problems of manually retrieving information from land title record systems, the costs of automation appear substantial, and only 9 percent of land title recording offices appeared to have plans to improve their systems in 1971. <sup>3/</sup> Information on the use of computers by land title recording offices is scant. As many as 344 of these offices (or 14.6 percent of all responding jurisdictions) may use computers in some fashion.<sup>4/</sup> Sixty recording jurisdictions having automated "deed records" are identified in the County Information Systems Directory and the

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<sup>3/</sup>Land Title Recording, p.16.

<sup>4/</sup>In Land Title Recording, machine-processing methods of recording were lumped in an "other" category; see tables 2 and 4, pp. 19-20.

Municipal Information Systems Directory, and these and other jurisdictions are identified in table 8-1.5/ In addition, according to a survey by the National Association for State Information Systems, Hawaii is automating a grantor-grantee index.6/ In some instances, recording offices share computerized land title indexing systems developed by title companies.

#### Other Functions

Apart from serving as a repository for land title records, land title recording offices sometimes perform other functions that relate to land record systems. Most automatically supply assessors offices with copies of deeds or other real property transfer documents.7/

#### Real Property Transfer Taxes

Land title recording offices also are frequently involved in the administration of real property transfer taxes. Apart from raising revenue, these taxes have the additional function of requiring the parties to a transfer of real property to disclose the sale price, terms, and other circumstances of the transfer (see table 8-2).8/ These sales data are crucial to the administration of the property tax, and real property transfer taxes presumably also could serve as the vehicle for obtaining the disclosures needed to monitor foreign ownership in real estate.

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5/Kenneth L. Kraemer, Joseph R. Matthews, William H. Dutton, and Linda D. Hackathorn, The Municipal Information Systems Directory: 1975 (Irvine, Calif.: Public Policy Research Organization, University of California, Irvine, 1976; distributed by Lexington Books, D.C. Heath and Company, Lexington, Mass.) and Joseph R. Matthews, Kenneth L. Kraemer, Linda D. Hackathorn, and William H. Dutton, The County Information Systems Directory: 1975 (Irvine, Calif.: Public Policy Research Organization, University of California, Irvine, 1976; distributed by Lexington Books, D.C. Heath and Company, Lexington, Mass.).

6/National Association for State Information Systems, 1977-1978 NASIS Report: Information Systems Technology in State Government (Lexington, Ky.: National Association for State Information Systems, 1978), p. A-58. NASIS also reports that Minnesota, Nebraska, Texas, and Wisconsin have computerized "land-use-ownership" applications.

7/ International Association of Assessing Officers, Research and Technical Services Department, Assessment Practices in the United States (Springfield, Va.: distributed by National Technical Information Service, 1978), pp. 96, 175, and 176.

8/For additional information on real property transfer taxes, see U.S. Bureau of the Census, State and Local Ratio Studies and Property Assessment, Series GSS No. 72 (Washington, D.C.: U.S. Government Printing Office, 1975).

Table 8-1--Land title recording offices  
reported to have computerized records

<u>Counties</u>		
<u>Alabama</u>	<u>Georgia</u>	<u>Pennsylvania</u>
Montgomery	Cobb	Beaver
		Berks
<u>Arizona</u>	<u>Idaho</u>	Bucks
Maricopa	Ada	Lackawanna
		Lycoming
<u>California</u>	<u>Illinois</u>	Montgomery <u>5/</u>
Alameda	Champaign	
Fresno	Lake <u>1/</u>	<u>South Carolina</u>
Kern		Charleston
Los Angeles	<u>Kansas</u>	
Orange	Sedgwick	<u>Tennessee</u>
Riverside		Knox
Sacramento	<u>Massachusetts <u>2/</u></u>	
San Bernardino	Middlesex	
San Luis Obispo	Norfolk	<u>Texas</u>
San Mateo	Plymouth	El Paso
Santa Barbara	Worcester	Harris
Ventura		Hidalgo
	<u>Minnesota</u>	Tarrant
<u>Colorado</u>	Anoka	
Adams	Hennepin <u>3/</u>	<u>Utah</u>
Boulder		Salt Lake
El Paso	<u>Missouri</u>	Weber
Pueblo	Clay	
	St. Louis	<u>Washington</u>
<u>Florida</u>		King
Alachula	<u>Nevada</u>	Spokane
Dade	Washoe	
Orange		
Pinellas	<u>New Hampshire</u>	
Polk	Rockingham <u>4/</u>	
Sarasota		
<u>Municipalities</u>		
<u>California</u>		<u>Rhode Island</u>
San Francisco		Woonsocket <u>6/</u>
<u>Colorado</u>		<u>Tennessee</u>
Denver		Nashville-Davidson
<u>Connecticut</u>		
New Haven		
West Haven		

1/Communication with Real Estate Data, Inc.

2/Survey by the Massachusetts Land Records Commission, 1975, updated to May 1979 by MacDonald Barr.

3/Communication with William J. Craig regarding an April 1977 survey of land records and computer applications of Minnesota jurisdictions by the Intergovernmental Information Systems Advisory Council.

4/Edith E. Holland, "Recording Land Transfers" in Proceedings of the Land Records Symposium (Orono, Maine: University of Maine at Orono, 1976).

5/John S. Magill, "High Volume Deed Recording Made Easy: Montgomery County, Pennsylvania," American City 32 (July 1976): 90-91.

6/O. Martin Anochie and Harlan J. Smolin, Directory of Data Processing in Small Local Governments, Management Information Service Special Report (Washington, D.C.: International City Management Association, 1978).

Source: Except as noted, The County Information Systems Directory and The Municipal Information Systems Directory.



Table 8-2--Real property transfer taxes and  
the disclosure of sales prices and terms

State	Real property transfer tax	Disclosure		Affidavit required
		Sale price	Terms of sale	
Alabama	yes			no
Alaska	no <u>1/</u>	no	no	n.a.
Arizona	yes	yes	incomplete	yes
Arkansas	yes			no
California	no <u>2/</u>	<u>3/</u>	<u>3/</u>	no
Colorado	yes	yes	sometimes	no
Connecticut	yes			no
Delaware	yes			no
Florida	yes	no	no	no
Georgia	yes			yes
Hawaii	yes	yes	yes	yes
Idaho	no			
Illinois	yes	yes	no	yes
Indiana	no	no	no	no
Iowa	yes	yes	yes	yes
Kansas	yes	yes	no	yes
Kentucky	yes	yes	no	sometimes
Louisiana	no			
Maine	yes	yes	no	yes
Maryland	yes			no
Massachusetts	yes			no
Michigan	yes	yes	yes	yes
Mississippi	no			
Missouri	no			
Montana	no <u>1/</u>			
Nebraska	yes			
Nevada	yes	no		yes
New Hampshire	yes	no	no	no
New Jersey	yes	yes	yes	yes
New Mexico	no	no	no	no
New York	yes			no
North Carolina	yes	no	no	no
North Dakota	no	no	no	no
Ohio	no <u>2/</u>			
Oklahoma	yes	no	no	no
Oregon	no			
Pennsylvania	yes			yes
Rhode Island	yes			no
South Carolina	yes	yes	sometimes	yes
South Dakota	yes	yes	no	yes
Tennessee	yes			no
Texas	no			
Utah	no	no	no	no
Vermont	yes	yes	no	yes
Virginia	yes	yes	no	no
Washington	yes	yes	no	yes
West Virginia	yes			yes
Wisconsin	yes			yes
Wyoming	no			

1/A real property transfer tax has been proposed.

2/Has local option real property transfer tax.

3/Assessors are empowered to request such information.

Sources: IAAO Research and Technical Services Department staff  
compilation and U.S. Bureau of the Census, State and Local Ratio Studies  
and Property Assessment.

In about 28 of the 35 States that have real property transfer taxes, land title recording offices administer the tax, which often involves the processing of real property transfer affidavits in addition to collecting the tax.

### Mapping

It is sometimes recommended that land title recording offices maintain property ownership maps and assign parcel identifiers since they usually are the first government office to receive information about changes in legal descriptions.<sup>9/</sup> However, only in Utah are land title recording officials responsible for the production and maintenance of property ownership maps.<sup>10/</sup>

### Conclusions

At the present time, public land title recording systems appear unready to participate in a substantial way in a network of local, State, and Federal land record systems. The costs of preparing abstracts of title for all properties and of developing systems appear to be the major factors. The existence of private title plants also may hinder developments. Until recently, finding solutions to the problems caused by inefficient land title recording systems has been left in the hands of local governments and private industry. Hence, there has been a dearth of published research on the design of computer-assisted land title recording systems, and there have been comparatively few "success stories." For example, two of the more publicized attempts to develop an MPLDS based upon a land title record system, the Forysth County Land Record Information System (FCLRIS) and the Maritime Provinces Land Registration and Information Service (LRIS) have encountered a number of problems, chief among them insufficient funding to complete the system. However, a number of land title recording system improvement demonstration projects have been funded by the U.S. Department of Housing and Urban Development under the Real Estate Settlement Procedures Act of 1974 (RESPA), and the lack of model systems may soon be corrected. It should be pointed out, however, that the RESPA demonstrations are not intended to provide models for an MPLDS incorporating the land title recording or registration function, although one or more of the models might in fact be such an MPLDS.

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<sup>9/</sup>In connection with statutes governing subdivisions and tax collection, assessors, planning officials, or treasurers may be required to approve certain changes in legal descriptions in some States before a deed can be recorded.

<sup>10/</sup>Utah's property -ownership mapping program will be discussed in the mapping subsection of the section on assessment record systems.

## ASSESSMENT RECORD SYSTEMS

Assessors are responsible for (1) locating and describing properties, (2) appraising or estimating the value of properties, (3) keeping records linking properties to their respective owners, and (4) designating the official value of properties for tax purposes, taking into account legal reasons for altering appraisal values.<sup>11/</sup>

### Contents of Assessment Record Systems

To perform their functions, assessors must collect, store, retrieve, and analyze a great deal of information that is related to the ownership and use of land parcels (see table 7-2). Because it is not uncommon for assessors to maintain several separate files that are linked by parcel identifiers, one or more of which may be automated, it is convenient to think of the information in these files as falling into one of the following categories: (1) legal descriptions, (2) property characteristics, (3) market data, and (4) ownership data.<sup>12/</sup>

### Legal Description Files

The primary working file containing legal descriptions is a set of property ownership or assessment maps. In fact, it is often stated that the first requirement of a good assessment system is a complete set of assessment maps (the status of assessment maps will be discussed later). On assessment maps, legal descriptions are represented graphically, not merely in writing. The compilation of assessment maps is somewhat analogous to assembling a jigsaw puzzle. Only when the puzzle is complete can one be sure that all the pieces are accounted for. Similarly, accurate assessment maps are required to ensure that all taxable land is assessed and that no land is assessed twice. Once the sizes and shapes of all parcels have been established and graphically represented (to the assessor's satisfaction at least), the processes of discovering and inventorying land improvements are facilitated. Knowledge of the size, shape, and location of parcels is essential to land appraisal. Assessment maps also are indispensable in other aspects of appraisal operations and can serve many other purposes as well.

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<sup>11/</sup>For a more comprehensive treatment of real property assessment systems, see International Association of Assessing Officers, Improving Real Property Assessment: A Reference Manual (Chicago: International Association of Assessing Officers, 1978).

<sup>12/</sup>The following discussion of assessment record files is adapted from Improving Real Property Assessment, pp.29-34, and Richard R. Almy, "Cadastral in Property Tax Administration" in Proceedings of the American on Surveying and Mapping, 37th Annual Meeting, February 27-March 5, 1977, Washington, D.C. (Falls Church, Va.: American Congress on Surveying and Mapping, 1977), pp. 441-444.



Legal descriptions also are generally printed on the assessment rolls (synonyms for which include cadastre, list, grand list, abstract of ratables, and rendition) and may be contained in property characteristics files.

### Property Characteristics Files

Property characteristics (or property record) files contain records of the facts on hand for each property and document the factors and methods used in appraising each property. The information contained in a property characteristics file is determined by the information required to identify and describe a property, to make appraisal calculations, and to satisfy property owners that the assessor is familiar with their properties.

The file usually is an active one, in which records are examined and revised virtually on a daily basis. The information in this file is used or processed whenever a property is scheduled for visual inspection, a property is reappraised, a property is sold, a building permit is issued for the property, or a property's assessment is appealed or reviewed by a review agency. Thus, the property characteristics file is essentially a record of the current status of properties, although it is not uncommon for the property records to provide a 5- to 10-year history of assessments and a history of sales, building permits, and appeals.

### Market Data Files

Assessors collect data on sales prices, building costs, and rents and operating expenses. These data are found in the property characteristics files and in special files that contain a description of the property as of the date of sale, the date construction was completed, or the dates to which the rental and operating expense data applied. The distinction between these special files and master property characteristics files is important. Property characteristics files contain a current description of all properties. The special files contain descriptions of only those properties for which sales prices, costs, or incomes are available and of characteristics and conditions in existence at the time of sale, construction, or rental. Sales data and similar files are crucial to the development of the valuation models used to appraise all properties.

### Property Ownership Files

The assessment roll normally is the primary property ownership file. Assessment-roll entries normally are arranged in parcel identifier order and contain the following information: the name and address of the current owner or taxpayer; the legal description of the parcel, which may be abbreviated or eliminated entirely if the full legal description is filed elsewhere and parcel identifiers are unique; the assessed value (often separate land and improvement values are listed); and such additional

information as the property-use code, the tax-rate area code, tax extensions, and the kind and amount of exemptions applying to the property.<sup>13/</sup>

### Summary

The contents of assessment records are summarized in table 8-3. It can be seen that there may be more data in assessment record systems than is commonly supposed. The quality of the data often is better than expected.

### Assessment Organization and Administration

Assessing is a shared responsibility. The basic framework of a property tax system is established by the constitution and statutes of each State, although local governments may be given substantial latitude in shaping the property tax system to meet local needs and conditions. In any case, the administration of property tax laws is the responsibility of local governments (e.g., counties, municipalities, and towns) in all States except Hawaii, Maryland, and Montana (see table 8-4). In States where local governments are responsible for original assessments, a State agency usually has a responsibility for supervising the administration of property tax laws, equalizing local assessments, or both. Delaware, however, has no State-level supervisory agency, and State supervision is negligible in a number of other States, including Pennsylvania and Texas. There also may be county-level supervisory and equalization agencies in States where assessment is the responsibility of municipal and town governments.

As table 8-4 indicates, the precise number of assessment districts is not known.<sup>14/</sup> The difficulty in estimating the number of assessment districts lies chiefly in the loose supervision of township assessors and in the treatment of "overlapping" assessment districts, in which each level of government (e.g., county, municipality, etc.) can make its own independent assessment of a parcel. The Census Bureau chooses, in its estimates, to count only county assessment districts in States where there are overlapping districts. For the purposes of evaluating the feasibility of a network of land record systems, however, each district should be considered on its own merits, and in Texas, at least, greater efforts to improve assessment record systems appear to have been made at the municipality and school district levels. A further complication is that in at least 14 States, joint assessment districts can be formed to make modernized assessment systems more affordable. The effect of joint assessment districts is to reduce the number of assessment record systems.

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<sup>13/</sup>See also Douglas Lewis, "Information Contained in Local Assessment Rolls," Assessors Journal 12 (December 1977): 239-268.

<sup>14/</sup>The numbers presented in table 8-4 differ in a number of respects from the latest estimate of the U.S. Bureau of the Census of the number of assessment districts, which is contained in State and Local Ratio Studies and Property Assessment, p. 19.

Table 8-3--Contents of assessment record systems

Data element	File			
	Legal descriptions	Property characteristics	Market data	Property ownership
Boundaries of individual parcels	X			
Parcel dimensions and/or areas	X	X		
Bearings (where applicable)	X			
Subdivision names, bound- aries, lot nos., etc.	X			
Governmental unit boundaries	X			
Easement and right of way boundaries	X			
Location and name of streets, etc.	X			
Assessors' parcel-identi- fiers	X	X	X	X
Street address		X	X	
Property-use classification code		X	X	X
Assessment-status code		X		X
Tax-rate-area code		X		X
Site characteristics		X	X	
Improvement characteristics		X	X	
Building perimeter sketch		X		
Building cost data		X		
Income and expense data		X	X	
Building permit history		X		
Sale date		X	X	
Sale price (nominal)		X	X	
Cash-equivalent sale price			X	
Time-adjusted sale price			X	
Sale acceptance/rejection code			X	
Source of sale confirmation			X	
Instrument number			X	
Assessment-sale price ratio			X	
Appraised and assessed values		X	X	X
Record of on-site inspections		X		
Appeals history		X		
Appraiser's name (coded)		X	X	
Year appraised		X	X	
Name of owner				X
Address of owner				X



Table 8-4—Estimated number of local assessment districts in the United States

State	Total	Counties	Municipalities	Townships	Other
Alabama	67	67	---	---	---
Alaska	25	11 <u>1/</u>	14	---	---
Arizona	14	14	---	---	---
Arkansas	75	75	---	---	---
California	58	58	---	---	---
Colorado	63	63	---	---	---
Connecticut	169	---	19 <u>2/</u>	149	1 <u>4/</u>
Delaware	3	3	---	---	---
Florida	67	67	---	---	---
Georgia	159	159	---	---	---
Hawaii	1	---	---	---	1 <u>5/</u>
Idaho	44	44	---	---	---
Illinois	1,426	19 <u>6/</u>	---	1,407	---
Indiana	1,008	---	---	1,008 <u>7/</u>	---
Iowa	118	99	19	---	---
Kansas	105	105	---	---	---
Kentucky	120	120	---	---	---
Louisiana	64	64 <u>8/</u>	---	---	---
Maine	498	---	---	497 <u>3/</u>	1 <u>9/</u>
Maryland	1	---	---	---	1 <u>10/</u>
Massachusetts	351	---	39	312 <u>3/</u>	---
Michigan	1,512 <u>11/</u>	---	267	1,245	---
Minnesota	96	87	9	---	---
Mississippi	82	82	---	---	---
Missouri	417	91	1	325	---
Montana	1	---	---	---	1 <u>12/</u>
Nebraska	93	93	---	---	---
Nevada	17	17	---	---	---
New Hampshire	234	---	13	221 <u>3/</u>	---
New Jersey	567 <u>13/</u>	---	335	232	---
New Mexico	32	32	---	---	---
New York	983 <u>14/</u>	2	62	919	---
North Carolina	100	100	---	---	---
North Dakota	1,721 <u>15/</u>	---	361	1,360	---
Ohio	88	88	---	---	---
Oklahoma	77	77	---	---	---
Oregon	36	36	---	---	---
Pennsylvania	67	67 <u>16/</u>	---	---	---
Rhode Island	39	---	8	31	---
South Carolina	46	46	---	---	---
South Dakota	70	64	6	---	---
Tennessee	95	95	---	---	---
Texas	254	254 <u>17/</u>	---	---	---
Utah	29	29	---	---	---
Vermont	249	3	9	237 <u>3/</u>	---
Virginia	136	95	41	---	---
Washington	39	39	---	---	---
West Virginia	55	55	---	---	---
Wisconsin	1,837 <u>18/</u>	1	574	1,262 <u>3/</u>	---
Wyoming	23	23	---	---	---
Total	13,432 <u>19/</u>	2,444	1,777	9,205	5

1/Boroughs.

2/Consolidated towns and cities.

3/Towns.

4/Consolidated town and borough.

5/The State currently is responsible for assessment. However, administration is decentralized at the county level, of which there are 3, and a 1978 constitutional amendment appears to give counties responsibility for assessment by 1981.

6/In the remaining 83 of Illinois' 102 counties is the office of Supervisor of Assessments, which has some supervisory authority over township assessors.

7/Indiana's 91 counties have some supervisory and support responsibilities.

(Continued)

Table 8-4--Estimated number of local assessment districts in the United States (continued)

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8/Parishes.

9/The State is responsible for assessment in the unorganized territory.

10/The State is responsible for assessment. However, administration is decentralized into 23 county-level and 1 municipality-level offices.

11/Michigan's 83 counties have some supervisory and equalization authority over local assessors.

12/The State is responsible for assessment, and the 56 elected county assessors are considered agents of the Department of Revenue.

13/New Jersey's 21 counties have some supervisory responsibilities over local assessors.

14/There are about 50 county real property tax service agencies.

15/North Dakota's 53 counties have some supervisory and equalization responsibilities.

16/There are, in addition, an unknown number of overlapping municipality, township, and borough assessors.

17/There are, in addition to the 254 county assessment districts, at least 1,250 overlapping municipal, school district, and special district assessors.

18/71 of Wisconsin's 72 counties have support responsibilities.

19/Includes the District of Columbia.

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In any case, the data in table 8-4 suggest that a nationwide MPLDS network would be based upon between 5,000 and 15,000 local assessment record systems under current patterns of assessment organization. If maximum advantage is made of existing county-level supervisory agencies, the network might consist of as few as 2,900 county assessment record systems and 1,700 other local government assessment record systems. The network can be further simplified through standardized data processing systems, which is a subject considered in the following discussion of the computerization of assessment records.

#### Computerization

The use of computers by assessors appears to be increasing rapidly. Ever since computers capable of efficiently storing and processing the masses of data found in assessment records became available to local governments in the late 1960's, assessors have eagerly embraced the new technology. The first applications were to automate the clerical processes of producing assessment and tax rolls and preparing and mailing assessment change notices, tax bills, and similar documents. The ability of computers to perform the myriad of calculations inherent in mass appraisal operations also was recognized early. Computers, however, have also brought about fundamental changes in the nature of mass-appraisal operations, the major change having been the application of econometric techniques such as multiple regression analysis to property valuation. 15/

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15/The literature on the use of computers in assessment administration is immense; see, for example, Robert C. Denne, Computer-Assisted Appraisal and Assessment Systems: An Annotated Bibliography, Bibliographic Series (Chicago: International Association of Assessing Officers, 1977).



The comparatively widespread use of computers by assessors together with the nature of the information contained in the records are major factors why assessment record systems are regarded as the most logical, albeit far from ideal, starting point of a national MPLDS network. The requirements that such a network be an intelligence system (i.e., contain information on specific parcels or transactions) and be capable of generating status data make it a virtual necessity that the data be in machine-readable form. The local-State-Federal nature of the network also makes it imperative that State agencies be able to read locally-produced data and that the Federal Government be able to read State-produced data.

A proliferation of different designs for computer-assisted appraisal and assessment systems obviously would make transmission of data through a national MPLDS network more difficult. Thus, standardization of, or at least compatibility in, codes and file structures becomes as important as the widespread availability of machine-readable data.

#### Extent of Use of Computers

An accurate picture of the exact extent of use of computers by assessors does not exist despite several surveys of computer use. Such surveys typically suffer from a number of problems. All jurisdictions of interest may not be included in the surveys, and some jurisdictions with interesting applications may not respond. General surveys of computer use by State and local governments tend to elicit such limited information about a particular application (such as assessing) that the information is virtually useless. There also seems to be a tendency for respondents to exaggerate; systems may be described as operational when they are, in fact, in a developmental stage (a parallel problem appears in the literature; pilot studies are sometimes portrayed as full-scale systems). Nevertheless, the surveys that are discussed below contain enough information to describe reasonably well the nature and extent of the use of computers by assessors.

An early survey on computer use by assessing offices, which was distributed to the members of the International Association of Assessing Officers (IAAO) in the March 1971 IAAO Newsletter, elicited only 175 responses, 136 of which indicated some use of computers. Eleven of those jurisdictions checked "regression analysis," the only valuation application included in the survey questionnaire. In comparison, a contemporary survey (GP-1), which was made by the U.S. Bureau of the Census in the winter of 1970-71 in preparation for the 1972 Census of Governments, suggested that slightly over 1,000 assessing jurisdictions (13.7 percent of the sample universe of 7,514 jurisdictions) used automated data-processing in the preparation of assessment rolls.<sup>16/</sup> Regional variations in the use of computers were

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<sup>16/</sup>Lewis, "Information Contained in Local Assessment Rolls," pp.255-256.



observed, and Lewis hypothesized that more populous jurisdictions were more likely to use computers. Other contemporary studies of computer use by local governments provided little additional information.<sup>17/</sup>

The relationship between the size of the assessment jurisdiction and the use of computers also was examined in the Survey of Assessment Practice that was made by the IAAO Research and Technical Services Department in January 1975.<sup>18/</sup> Following is a tabulation of responses to the question: Does your office make use of electronic data-processing (EDP) equipment?"--

	<u>Number</u>	<u>Percentage</u>
Yes	328	72.2
No	126	27.8
Total responses	454	100.0

Table 8-5 reveals that responses were highly correlated with jurisdiction size, suggesting that there may be economies of scale, with larger jurisdictions better able to afford, acquire, and justify the use of computers.

Respondents also were asked to give their best estimate of their EDP use that was devoted to each of the following tasks: (1) appraisal; (2) generation of valuation notices and assessment rolls; (3) sales analysis, including assessment-ratio studies; and (4) other. In responding, 307 jurisdictions (93.6 percent of those indicating they employed computers) broke their computer use into these four categories. Mean responses are reported in table 8-6. The table reveals that, on the average, over 70 percent of computer use was devoted to printing assessment rolls and valuation notices.

In Table 8-7, allocation of computer use is reported for jurisdictions grouped on the basis of size. The table indicates that larger jurisdictions make greater use of the computer for assessment activities, other than roll preparation, than do smaller jurisdictions. In fact, the 14 largest jurisdictions used the computer almost as heavily for appraisal purposes (31 percent of total use) as they did in the preparation of the assessment roll and tax notices (32 percent of total use).

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<sup>17/</sup>Kenneth L. Kraemer, Henry C. Lucas, Jr., Richard D. Hackathorn, and Robert C. Emery, Computer Utilization in Local Governments: A Critical Review and Synthesis of Research (Springfield, Va.: National Technical Information Service, 1973).

<sup>18/</sup>The Survey of Assessment Practice questionnaire was sent to 1,589 of the primary assessment jurisdictions in all 50 States and the District of Columbia that were surveyed in the 1972 Census of Governments study of taxable property values and assessment-sale price ratios. 457 jurisdictions (28.8 percent) returned completed questionnaires. See Richard R. Almy, Robert J. Gloudemans, and Robert C. Denne, Assessment Practices in the United States (Springfield, Va.: National Technical Information Service, 1978).

Table 8-5--Computer use, by size of jurisdiction

Number of single-family family residences, 1970 (hundreds)	Number of respondents	Respondents using computers	
		Number	Percentage
1-25	65	33	50.8
26-50	62	38	61.3
51-100	55	38	69.1
101-250	119	81	68.1
251-500	51	49	96.1
Over-500	72	71	98.6

Source: Survey of Assessment Practice.

Table 8-6--Allocation of computer use

Function	Mean percentage of total EDP use
Printing of assessment roll and valuation notices	71.1 (2.05) */
Sales analysis, including assessment-ratio studies	6.8 (0.52)
Appraisal, including regression analysis	11.2 (0.50)
Other	10.9 (0.49)

\*/Numbers in parentheses are t-values. Figures are based on 307 jurisdictions.

Source: Survey of Assessment Practice.

Table 8-7--Allocation of computer use, by size of jurisdiction

Number of real properties (hundreds)	Number of respondents	Mean percentage of computer use allocated to indicated tasks			
		Assessment roll and notices	Sales analysis	Appraisal	Other
1-99	80	89(3.33)	3(0.24)	3(0.17)	5(0.31)
100-249	56	79(2.81)	8(0.48)	7(0.37)	6(0.30)
250-499	54	75(2.37)	8(0.70)	12(0.52)	5(0.37)
500-999	53	60(1.69)	7(0.77)	13(0.53)	20(0.75)
1,000-2,499	36	44(1.27)	10(0.60)	21(0.90)	25(0.87)
2,500 or more	14	32(1.12)	12(1.85)	31(1.27)	25(0.89)

\*/Numbers in parentheses are t-values.

Source: Survey of Assessment Practice.

In addition to the overall percentage of computer use devoted to various tasks, a question of equal interest is the percentage of jurisdictions making at least some use of the computer in each task. Table 8-8 reveals that 67.4 percent of jurisdictions surveyed utilized computers in the preparation of assessment rolls and/or valuation notices, 29.1 percent utilized computers in sales analysis, 20.3 percent utilized computers in appraisal, and 21.1 percent utilized computers in "other" activities. The employment of mass-appraisal firms was not related to the utilization of computers in preparation of the assessment roll, but was related to computer use in each of the other three activities.

Table 8-8--Percentage of jurisdictions making some use of computers in selected activities

	All respondents	Respondents employing mass-appraisal firms	Respondents not employing mass-appraisal firms
Printing of assessment roll and valuation notices	67.4	69.0	68.1
Sales analysis, including ratio studies	29.1	19.6	36.3
Appraisal, including regression analysis	20.3	11.4	27.0
Other	21.1	15.2	25.9

Sample includes 184 jurisdictions employing and 263 jurisdictions not employing mass appraisal firms.

Source: Survey of Assessment Practice.

The majority of respondents reporting computer use in the "other" category indicated that computers are used to update and maintain records and files. These responses are perhaps best thought of as related, indirectly at least, to roll preparation and tax billing. Nineteen respondents said that computers are used to generate special reports, often for other departments or outside parties. Ten jurisdictions mentioned accounting and payroll preparation. Another 10 mentioned the processing of exemptions.

The problem of overlapping or ambiguous categories of computer applications limits the usefulness of the information presented in the Municipal Information System Directory and The County Information System



Directory, which are based on a February 1975 survey of data-processing managers in municipalities of 50,000 population or more and counties of 100,000 population or more. The overall responses on computer use were as follows:

	<u>Municipalities</u>		<u>Counties</u>	
	<u>Number</u>	<u>Percentage</u>	<u>Number</u>	<u>Percentage</u>
Yes	403	95.0	310	94.5
No	<u>21</u>	<u>5.0</u>	<u>18</u>	<u>5.5</u>
Total responses	424	100.0	328	100.0

The directories also presented information on the identity of jurisdictions that used computers in 11 ways that relate to assessment records. The number of jurisdictions responding in each application category is presented in table 8-9. Several of the categories overlap (e.g., "property tax records and billing," "tax roll, listing of all property," and "property ownership list"). Some jurisdictions responded to all three of these categories, while others responded to only one or two.

The International City Management Association (ICMA) has surveyed 1,965 small cities and 817 small counties not covered by the county and municipal information system directories discussed above. According to the ICMA survey, the date of which is not reported, 71.2 percent of the cities and 51.4 percent of the counties use EDP. The survey findings are reported in Directory of Data Processing in Small Local Governments by O. Martin Anochie and Harlan J. Smolin. Evidently each responding jurisdiction was asked to indicate how it used EDP, and in the entry for each jurisdiction is an abbreviated list of applications. In many instances, the application labels are very ambiguous, and it was not feasible to tabulate the responses according to application. However, it was possible in many instances to make an informed guess of the nature of the information that was computerized, and some of the jurisdictions included in the Directory of Data Processing in Small Local Governments are also included in the tabulation in table 8-10.

Table 8-10 represents an attempt to tabulate, by State, the jurisdictions that have been reported to have computerized records both in the surveys just discussed and in other sources as well. Rather than focusing on the type of application, table 8-10 focuses on the type of record that is most likely computerized. Thus, the jurisdictions that have computerized the information in their assessment rolls are listed in one column, while the jurisdictions that have computerized sales records and property characteristics are listed in other columns. Judgment was necessarily employed in assigning jurisdictions to the various categories, and an attempt was made to be "conservative" in ascribing computerized sales files

Table 8-9--Selected assessment-related computer applications in county and municipal information systems

Application	Number of counties	Number of municipalities	Total responses	Percentage of total
Property tax records and billing	165	132	297	42
Real property records	157	127	284	40
Property sales listing	85	42	127	18
Sale-ratio analysis	81	38	119	17
Calculation of real property value, assessing	78	55	133	19
Regression for residential property appraisal	43	24	67	9
Regression analysis for nonresidential property appraisal	25	21	46	6
Tax roll, listing of all property	164	128	292	41
Property ownership list	143	120	263	37
Miscellaneous	26	15	41	6
Total number responding to survey	310	403	713	100

Sources: The County Information Systems Directory and The Municipal Information Systems Directory

Table 8-10--Computerization of assessment records

State	State-sponsored system development activity	Number of local assessment districts reported to have computerized records		
		Roll	Sales	Parcel
Alabama	no	5	---	---
Alaska	no	2	---	---
Arizona	yes	14	14	14
Arkansas	no	1	---	---
California	yes	58	29	24
Colorado	yes	12	1	12
Connecticut	no	34	2	3
Delaware	no	1	---	1
Florida	yes	67	67	67
Georgia	yes	12	3	7
Hawaii	yes	1	1	---
Idaho	yes	4	1	1
Illinois	yes	12	5	9
Indiana	yes	6	4	5
Iowa	yes	14	1	4
Kansas	no	8	2	3
Kentucky	yes	2	---	2
Louisiana	yes	12	1	2
Maine	yes	11	2	2
Maryland	yes	7	3	5
Massachusetts	yes	22	1	8
Michigan	no	45	14	22
Minnesota	yes	38	16	9
Missouri	no	9	---	4
Montana	yes	9	---	9
Nebraska	yes	3	2	2
Nevada	yes	2	1	2
New Hampshire	no	3	---	---
New Jersey	yes	567	2	11
New Mexico	no	24	---	1
New York	yes	582	128	128
North Carolina	yes	18	4	7
North Dakota	yes	3	1	1
Ohio	no	65	26	15
Oklahoma	no	5	2	2
Oregon	yes	13	7	7
Pennsylvania	no	19	8	16
Rhode Island	no	5	---	---
South Carolina	no	5	44	4
South Dakota	no	5	---	---
Tennessee	yes	94	2	7
Texas	no	76	6	25
Utah	yes	5	5	5
Vermont	yes	50	---	1
Virginia	no	31	8	13
Washington	yes	14	2	7
West Virginia	yes	10	---	13
Wisconsin	yes	32	3	10
Wyoming	yes	1	---	---
Total	31 yes	2,028	378	492

Source: IAAO Research and Technical Services Department staff compilation from Survey of Assessment Practice; The Municipal Information Systems Directory; The County Information Systems Directory; Directory of Data Processing in Small Local Governments; 1977-1978 NASIS Report; Assessment Record System Survey; and other sources.



and property characteristics files to a jurisdiction. Thus, the exhibit may understate progress in computerizing assessment records. However, the feasibility of a national MPLDS network will be strongly influenced by progress in all three areas.

### Standardization

The degree of standardization of computerized assessment record systems also will bear on the feasibility of a national MPLDS network. Standardization may be the result of a number of factors: (1) efforts of national scope to develop model computer-assisted appraisal and assessment systems; (2) Statewide efforts to develop a model system; (3) State efforts to ensure uniformity in assessment practices (a goal that may be closely related to factor (2) above); (4) industry efforts to market standard systems; (5) joint efforts to develop a system, including the use of service bureaus; and (6) system transfers.

Efforts on a national scope to develop a model computer-assisted appraisal and assessment system have been limited. In 1974, the National Science Foundation awarded a contract to the Kentucky Department of Revenue to develop a highly modular and therefore transferable computer-assisted real estate assessment and land records system.<sup>19/</sup> The research underwent a number of vicissitudes and culminated with the publication of the CREAL System Design Manual.<sup>20/</sup> The CREAL System Design Manual consists of introductory materials, a discussion of a table system, and task narratives and program solutions. These latter materials conceivably might facilitate transfers at the system-design level, but no evidence of such occurring has been uncovered. A proposed Phase II test implementation of the CREAL system was never funded.

Another research project, the study of assessment practices made by the IAAO Research, and Technical Services Department under a contract with the U.S. Department of Housing and Urban Development, Office of Policy Development and Research, also had aspirations of influencing the design of assessment systems. Since the major product of that study, Improving Real Property Assessment: A Reference Manual, was not published until November

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<sup>19/</sup>See E. Roe Rogers, "National Science Foundation Research Project on Computer Assisted Real Estate Assessment Systems," in Revenue Administration 1975 (Chicago: Federation of Tax Administrators, 1976), pp. 89-91.

<sup>20/</sup>Kentucky Department of Revenue, CREAL System Design Manual, 8 vols. in 9 parts (Frankfort, Ky.: Department of Revenue, 1977). Readers also may be interested in the earlier Real Estate and Land Record System Research Project: Phase I, Final Report, 8 vols. (Frankfort, 1976: distributed by the National Technical Information Service), which tabulates the 30 insights into system design that were obtained from the 10 field investigations of existing systems undertaken by the researchers, evaluates statistical techniques and computer programs on a number of data bases and reaches some controversial conclusions, and presents at a rather high level of abstraction a conceptual ("Hierarchy plus Input Process Output") design for the proposed CREAL system.

1978, it is too soon to tell what the effect of the project will be. However, any effort on the standardization of computer system is likely to be indirect since the Reference Manual makes only general system-design recommendations.

State-level activities to develop model systems have been much more extensive, and a number have met with marked success. The California State Board of Equalization in the late 1960's and the early 1970's pioneered the application of multiple regression analysis (MRA) to property valuation and developed a package of regression programs that have served as the basis for computer-assisted appraisal programs in about 20 percent of California's 58 counties. This has been exported to other States as well (the MRA package that Cook County, Ill., uses is a modified version of the California package). The first statewide computer-assisted appraisal system was developed for the Arizona Department of Revenue in the early 1970's by a consultant. The system, developed under severe time constraints, was rudimentary, incorporating both MRA and a current replacement cost calculation model. However, the system did result in substantial improvements in the quality of the appraisals of residential property, and it is now being upgraded. Because the system was applied on a statewide basis, virtually all property records in Arizona are in a compatible, machine-readable form, and about half of Arizona's county assessors utilize the State's data-processing services.

Perhaps the most ambitious effort to develop computer-assisted appraisal and assessment systems was undertaken by the New York Division of Equalization and Assessment. The New York system, developed by a combination of consultants and State personnel, is known as the Real Property Information System and consists of two major modules: the Assessment Roll and Levy Module (ARLM) and the Data Collection and Valuation Module (DCVM). The modules are well documented, and the State provides financial assistance as well as technical assistance in implementing them. To date, 582 jurisdictions have or are in the process of implementing ARLM or equivalent systems; State aid in support of these systems was \$1.3 million (system design and development costs are not reported). Thus far, 128 jurisdictions have implemented DCVM at an additional cost to the State of \$2.9 million.

Several States have less ambitious but generally successful systems. In New Jersey, for example, virtually all local jurisdictions have implemented the New Jersey Property Tax System, which is an assessment roll system, although an expanded version of the system can accommodate more than 35 property characteristics. Similarly, all but 1 of Tennessee's 95 counties use the State's tax-billing and sales-analysis programs, and 88 counties use the State's computer as well. Substantial progress also has been made in West Virginia, where 8 counties have implemented the County Tax Computer System and by July 1979 13 counties will be on the Real Property Data System. The computer-assisted appraisal system that has been developed in Utah has been implemented in 5 counties, and implementation in all counties is expected by 1983. Montana's computer-assisted appraisal



system is operational in nine counties. In North Carolina, under the sponsorship of the North Carolina County Commissioners Association, 17 counties contributed about \$3,500 each to have North Carolina State University adapt two commercially prepared computer-assisted appraisal systems to three of the small computer hardware configurations most commonly used by North Carolina counties. The systems have thus far been installed in two counties.<sup>21/</sup> Florida has had success in requiring counties to meet data-processing standards without actually developing a computer-assisted appraisal system and, as a result, virtually all counties have their assessment records in machine-readable form.

A number of efforts, including those in Hawaii, Idaho, Illinois, Indiana, Massachusetts, Minnesota, North Dakota, and Vermont, are of too recent origin to have had any influence. The status of efforts in Iowa, Maine, Nebraska, and Wisconsin is unknown.

In four States, system-development activities seem to have faltered. In Colorado, the State County Cost Sharing Organization (STACO) is reported to be moribund. STACO is a cooperative effort of the State of Colorado and Arapahoe, Boulder, Grand, Mesa, Summit, and Weld Counties. The STACO system, developed at a cost of about \$350,000, consists primarily of a data file and a valuation system that provides current cost estimates of buildings, although programs for using MRA also have been completed. Because of managerial problems rather than technical reasons, the system never reached its potential. The state eventually turned over control of STACO to a service bureau, of which there have been several. Funding of the system is expected to cease in 1979.

In about 1974, the same consultant who developed Arizona's computer-assisted appraisal system was selected to develop a system for Georgia. Although there is not much information available about the status of the system, the consultant has suffered a number of business reverses, and some of the counties in which the system was being implemented have expressed dissatisfaction with the design of the system.

The State of Oregon participated in the development of the Inter-Regional Information System (IRIS). IRIS, as originally conceived, ceased to exist in 1977.<sup>22/</sup> Similarly, the State of Washington's system has met with limited acceptance, with only about four counties implementing it.

The role of industry in standardizing computer systems is unknown. The industries that serve assessors have tended to be unstable. With several exceptions, the firms involved in the development of computer-assisted appraisal systems have appeared stable, and they presumably employ similar

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<sup>21/</sup>Communications with William Connolly and Woodrow Robbins (May 29, 1979).

<sup>22/</sup>Richard R. Almy, "The Joint Development and Use of Property Information," Assessors Journal 14 (June 1979): 75. IRIS is discussed further in the section on existing multipurpose land data systems.



design principles in most of their system development activities. At least one major hardware manufacturer, Burroughs, actively markets an assessment system. However, system documentation is not generally available for review.

Cooperative arrangements, service bureaus, and joint efforts represent an additional vehicle for the standardization of machine-readable assessment records and, potentially, a means of reducing the number of assessment record systems in a national MPLDS network. Several such cooperative data-processing arrangements and facilities are identified in table 8-11.

### Conclusions

The use of computers by assessment jurisdictions is widespread and spreading. However, in many smaller jurisdictions, only name-address-legal description (NAL) files are computerized. Computerization of parcel characteristics and sales data will be necessary before a jurisdiction could fully participate in a national MPLDS network. State-level system-development efforts and other cooperative efforts will reduce problems of translating machine-readable data. In a few States and regions, considerable standardization has occurred.

### Mapping

A set of accurate, large-scale, property ownership maps, as emphasized in chapter 7, is an integral part of an MPLDS. The importance of such maps to assessment record systems, which was summarized in the discussion of legal description files (supra), also is widely recognized by assessors. This section considers the extent of coverage of assessment maps, standardization in assessment-mapping, and computerization of property ownership maps.

### Extent of Assessment Maps

Thirty-two States legally require assessment maps (see table 8-12). A number of States have taken additional, affirmative steps to ensure that local assessors have maps. Twenty-six States, including three that do not require maps, have published mapping specifications.<sup>23/</sup> Sixteen of the States requiring assessment maps have embarked upon statewide mapping programs, often as a preliminary phase of a statewide revaluation program. In 20 of the States requiring assessment maps, the State property tax supervisory agency either compiles all assessment maps or offers the assistance of State mapping personnel to local assessment districts in preparing or updating maps. Three States not requiring assessment maps (Massachusetts, Montana, and Virginia) also provide technical assistance in mapping. Finally, nine of the States that require maps have offered

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<sup>23/</sup>Six States also have published "partial" specifications, which are more in the nature of general recommendations than a set of specific requirements (see table 8-12).

financial assistance in the form of grants, loans, or both to local assessment districts to help them secure maps. North Carolina, which does not require maps, also offers financial assistance.

The available data suggest that the extent of assessment maps in the United States is quite broad, largely as a result of the mapping programs and

Table 8-11--Cooperative data-processing arrangements  
and facilities

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Alabama--	Regional Computer cooperative
Arizona--	Department of Revenue North Arizona Council of Governments
California--	Butte County Stanislaus County
Colorado--	STACO
Georgia--	Areawide Data Processing Center, Coastal Plains APDC Georgia Mountains Area Planning and Development Commission
Idaho--	Ida-Ore Regional Planning and Development Association
Michigan--	Southeast Michigan Council of Governments
Minnesota--	Local Government Information System Minnesota County Information System Minnesota County Computer Cooperative
Oregon--	Lane County
Rhode Island--	Municipal Cooperative Data Processing System
South Carolina--	South Carolina Appalachian Regional Computer Commission
Tennessee--	Division of Property Assessments
Texas--	Capital Area Planning Council
Utah--	State Tax Commission
West Virginia--	Information System Services Division, Department of Finance and Administration

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Sources: Almy, "The Joint Development and Use of Property Information;" Anochie and Smolin, Directory of Data Processing in Small Local Governments; and Intergovernmental Information Systems Advisory Council, "Request for Proposal for the Development of a Computer Assisted Appraisal System for Residential Property and Agricultural Land for Medium Sized Jurisdictions in Minnesota" (Saint Paul, 1979).



activities discussed above. Of the 457 respondents to the Survey of Assessment Practice, 411 (89.9 percent) indicated that they had a complete set of assessment maps.<sup>24/</sup> Analysis revealed that larger jurisdictions were more likely to have assessment maps than smaller ones. Only 85 percent of jurisdictions with fewer than 50,000 single-family residential parcels had maps, while 90.9 percent of jurisdictions with at least 50,000 but less than 250,000 single-family residential parcels and 96 percent of jurisdictions with 250,000 or more single-family residential parcels had maps. Estimates of the percentage of assessment districts with assessment maps for each State are contained in table 8-12. Coverage appears nearly complete in Alabama, Arizona, California, Georgia, Hawaii, Indiana, Maryland, Nevada, New Mexico, Tennessee, Utah, and West Virginia. In Arkansas, Louisiana, Minnesota, Mississippi, Missouri, Montana, North Dakota, Texas, and Vermont, fewer than one-half the assessment districts appear to have maps. In any case, the data from the Survey of Assessment Practice and the estimates in table 8-12, when taken together, suggest that assessment maps may be lacking in many sparsely settled areas of the United States.

A set of assessment maps soon loses its usefulness if maps are not updated each time a new parcel is created. Moreover, much of the expense in compiling maps is wasted if the maps are not maintained. These facts appear to be recognized by most assessors: 396 (96.4 percent) of the respondents to the Survey of Assessment Practice who indicated that they had a set of assessment maps also said they maintained their maps. The technical-assistance activities mentioned earlier also help ensure that maps are maintained.

### Standardization

Although standardization in assessment maps would increase the usefulness of maps in a national MPLDS network, more important issues from the standpoint of the feasibility of an MPLDS network are the nature of mapping standards themselves and the degree to which standards are enforced.

With respect to the nature of assessment-mapping standards, many commentators, including Blachut, hold the view that assessment maps are inadequate to meet the needs of an MPLDS.<sup>25/</sup> The basic belief is that assessment-maps are too inaccurate to be useful for such purposes as conveyancing and engineering. Several problems have been identified, including assessment maps that are not based upon photogrammetric base maps, maps that do not contain references to coordinate systems, imperfect geodetic control nets, and vague or erroneous legal descriptions.

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<sup>24/</sup>Assessment Practices in the United States, p.99.

<sup>25/</sup>T.J. Blachut, "Cadastre as a Basis of a General Land Inventory of the Country," in T.J. Blachut and J. Alberto Villasana, eds., Cadastre: Various Functions, Characteristics, Techniques, and the Planning of a Modern Land Records System (Ottawa: National Research Council of Canada, 1974), p.5; and T.J. Blachut, "What Constitutes a Land Records System--A Cadastre?" in Proceedings of the North American Conference on Modernization of Land Data Systems (A Multi-Purpose Approach) (Washington, D.C.: North American Institute for Modernization of Land Data Systems, 1975), pp.11, 14, and 15.



Table 8-12--Status of property ownership mapping

State	Maps required	Mapping specifications	Statewide mapping program	Technical <sup>1/</sup> assistance	Financial assistance	Estimated percentage of districts with maps
Alabama	yes	yes	yes(1972--)	yes	yes	95
Alaska	no	no	no	no	no	50
Arizona	yes	no	no	yes	no	100
Arkansas	no	partial	no	no	no	40
California	yes	yes	no	yes(1947-63)	no	95
Colorado	yes	yes	yes(1976-81)	yes	no	87
Connecticut	no	no	no	no	no	80
Delaware	no	no	no	no	no	67
Florida	yes	yes	no	yes	yes	87
Georgia	yes	yes	yes(1961-73)	yes	yes	95
Hawaii	yes	yes	yes	n.a. <sup>2/</sup>	n.a.	100
Idaho	yes	yes	no	yes	no	90
Illinois	yes	yes	no	yes	no	56
Indiana	yes	partial	no	no	no	100
Iowa	yes, plats	partial	no	no	no	50
Kansas	yes	no	no	no	no	50
Kentucky	yes	yes	yes(1949-82)	yes	no	75
Louisiana	yes	no	no	no	no	40
Maine	yes	yes	no	yes	no	80
Maryland	yes	yes	yes(1952--)	n.a.	n.a.	100
Massachusetts	no	yes	no	yes	no	75
Michigan	no	yes	no	no	no	70
Minnesota	no	partial	no	no	no	30
Mississippi	yes	yes	no	no	no	30
Missouri	no	partial	no	no	no	45
Montana	no	no	yes	yes	no	40
Nebraska	yes	yes	yes(1963--)	yes	no	60
Nevada	yes	yes	no	no	no	100

(continued)

Table 8-12--Status of property ownership mapping (continued)

State	Maps required	Mapping specifications	Statewide mapping program	Technical assistance	Financial assistance	Estimated percentage of districts with maps
New Hampshire	no	no	no	no	no	90
New Jersey	yes	yes	no	yes	no	79 79
New Mexico	yes	yes	yes(1975-)	yes	yes	100
New York	yes	yes	yes(1971-79)	yes	yes	58
North Carolina	no	yes	no	no	yes	60
North Dakota	no	partial	no	no	no	1
Ohio	no	no	no	no	no	90
Oklahoma	no	no	no	no	no	65
Oregon	yes	yes	yes(1956-)	yes	yes	86
Pennsylvania	yes	no	no	no	no	50
Rhode Island	no	no	no	no	no	70
South Carolina	yes	yes	yes(1976-80)	no	no	50
South Dakota	yes	no	no	no	no	75
Tennessee	yes	yes	yes(1967-)	yes	yes	97
Texas	no	no	no	no	no	40
Utah	yes	yes	yes(1977-83)	no	yes	100
Vermont	yes	yes	yes	yes	no	10
Virginia	no	no	no	yes	no	90
Washington	yes	no	no	no	no	70
West Virginia	yes	yes	yes(1973-)	yes	yes	100 <sup>3/</sup>
Wisconsin	no	no	no	no	no	46 <sup>3/</sup>
Wyoming	no	no	no	no	no	50
Total	32	26	16	21	10	---
yeses		6, partial				

1/Inclusive dates, where known, are shown in parentheses.

2/n.a.: not applicable--State assessment.

3/Estimated percentage of counties having maps.

Sources: Assessment Record System survey; Richard R. Almy, "Assessment Mapping and Parcel Identification Systems," Assessors Journal 10 (December 1975); communication with Martin D. Miller and with D. David Moyer; and other sources.

An examination of published specifications confirms that many specifications, particularly earlier ones, do not require photogrammetric base maps or references to coordinate systems. Although the establishment of denser geodetic control networks is increasingly recognized by assessment officials as a prerequisite to accurate base maps, the problem cannot be readily solved without greater input from the surveying community. Assessment mapping specifications prepared by professional surveyors and mappers often are quite vague on ground-control requirements.<sup>26/</sup>

Problems inherent in legal descriptions also are beyond the control of assessment mappers. However, photogrammetry, by providing a picture of the sizes and shapes of landforms and use patterns, enables mappers to reconcile for the purposes of taxation, at least, gaps and overlaps in descriptions. These reconciliations often serve as the basis for more authoritative resolutions of poor legal descriptions. Thus, the compilation of assessment maps may be regarded as a means of identifying problems with legal descriptions that can be resolved as the parties involved require, and the fact that maps contain inaccurate descriptions need not hamper their usefulness in an MPLDS.

Another problem, the dimensions of which are unknown, is the failure of mappers to produce maps that meet whatever specifications may be in force. Put another way, State and local assessment officials often fail to enforce mapping standards. Numerous reasons, chief among them a lack of experienced mappers, may account for this, but mapping standards that are not enforced are scarcely better than no standards at all.

Property tax supervisory agencies in a number of States, including Kentucky, New Jersey, New Mexico, New York, South Carolina, Tennessee, and Utah, appear to attempt to enforce mapping standards, however.

#### Computerization

Computer-assisted property ownership mapping promises to increase the usefulness of maps by greatly increasing the flexibility of mapping operations: maps potentially can be quickly produced at any desired scale, at any desired orientation, of any desired land area, and with any combination of "overlays" containing the information desired for a particular application. Having map data in digital form, accordingly, represents the ultimate in sophistication in an MPLDS.

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<sup>26/</sup>See, for example, Bernard Schechter, Richard C. Roberts, and Marshall Wright, Jr., Aerial Photography for Photogrammetric Mapping (Chicago: American Public Works Association, 1979).



To date, computer-assisted mapping systems are in varying stages of testing and development in Alameda County, Calif.; Bell County, Tex. (in conjunction with Texas Power and Light); Forsyth County, N.C.; Hennepin County, Minn.; Lane County, Oreg.; Montgomery County, Pa.; Nassau County, N.Y.; Pinellas County, Fla.; in the State of Oregon by the Urban-Rural Mapping Unit of the Department of Revenue; and in the State of Utah by the State Tax Commission.<sup>27/</sup> No computer-assisted assessment mapping system appears to be fully implemented, although the Alameda County and Lane County efforts appear closest to completion. The programs in Forsyth County and the State of Utah are awaiting the selection and purchase of computer hardware. The Hennepin County and Montgomery County efforts are pilot projects.

Two divergent methodologies for putting map data into digital form appear to be emerging. The more common is to digitize maps or to digitize directly from stereoscopic aerial photographs. Alameda County, in contrast, enters metes-and-bounds descriptions of parcels directly into a graphic microprocessor, one block at a time. Block "maps" are then fed into a minicomputer. Also stored in the minicomputer are the State plane-coordinate values of the monuments of the geodetic control network, which were determined by an autosurveyor. Thus, photogrammetry and digitizing are avoided.

Regardless of the methodology, the widespread development of computer-assisted mapping systems awaits the densification of geodetic control networks, the resolution of discrepancies in legal descriptions, and the ready availability of reliable computer hardware and software.

### Conclusions

Assessment maps appear to exist in populous areas of the country, and one or more actions have been taken in about half of the States to ensure that all assessment districts have a set of property ownership maps. Assessment maps appear to be of uneven and uncertain quality. The accuracy of assessment maps may generally be inadequate for some applications, including engineering and conveyancing (since assessment maps merely reflect existing legal descriptions). It is doubtful, however, that deficiencies in assessment maps--as opposed to the nonexistence of maps in some localities--will seriously hamper the incremental development of a national MPLDS network.

### Parcel Identification

An integral element of an MPLDS is a system for linking the contents of various files by a unique code number that is assigned to each parcel in the system. Such unique numbers or "parcel identifiers" reduce more

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<sup>27/</sup>Booz, Allen, Hamilton, Inc., Land Title Mapping and Surveying Research Report, prepared for the U.S. Department of Housing and Urban Development, June 6, 1978; and IAAO Research and Technical Services Department staff compilation.

elaborate descriptions of a parcel (e.g., legal descriptions) to a manageable size for machine- and human-processing and are typically assigned by assessors during the compilation and maintenance of assessment maps. As chapter 7 indicates, parcel identifiers based upon the geographic coordinates of the approximate (visual) centers of parcels are regarded as preferable, although other systems for assigning parcel identifiers have proven satisfactory in practice.<sup>28/</sup> Most of the parcel identification systems that are used by assessors can be grouped into the following general types: geographic coordinate systems, Federal rectangular (or government) survey systems, assessors' map book and page systems, and consecutive or serial number systems (see table 8-13). There is little standardization within the general categories, and several other types of systems also exist. Consecutive number systems, which are the least satisfactory systems in most respects, are no longer recommended or required by any State. Table 8-14 presents information on standard parcel identification systems. Standard parcel identification systems have not been developed in 18 States. Standard systems are required in only 14 States. Although the available information is limited, estimates of the percentage of assessment districts using standard parcel identification systems suggest that standard systems are fully implemented in only a few States. In conclusion, a great deal remains to be done before parcel files can be linked via systems of standard parcel identifiers. Moreover, sub-state aggregations of data will be a messy affair, given the diversity in standard parcel identification systems.

### Standardization in Descriptive Codes

Meaningful aggregations of data in an MPLDS network will only be possible if there is standardization in the ways property characteristics are described and coded. In this section, standardization of property-use codes is examined. Standardization of descriptions of other property characteristics is approached indirectly through an examination of States powers to control the forms used by local assessors.

### Property Use Codes

Property use codes serve to reduce a narrative description of how a property is used to a numerical, alphabetical, or alphanumerical value. They are used chiefly for analytical (e.g., identifying comparable properties) and descriptive (e.g., summarizing assessment ratios by property type) purposes. However, in States that have adopted a classified property tax system, in which the legal level of assessment or the tax rate

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<sup>28/</sup>Desirable attributes of parcel identification systems are discussed in more detail in D. David Moyer and Kenneth Paul Fisher, Land Parcel Identifiers for Information Systems (Chicago: American Bar Foundation, 1973); Almy, "Assessment Mapping and Parcel Identification Systems"; and Hartmut Ziemann, Land Unit Identification: An Analysis (Ottawa: National Research Council of Canada, 1976).



Table 8-13--Standard parcel identification systems

Type of system	Format of identifier				Remarks
Coordinate	00000	00000	grid location (E/W)	grid location (N/S)	Model is based on New York "coordinate locator." Montana, South Dakota, Utah, Vermont, and Quebec also have developed coordinate identifiers. New Mexico has a coordinate identifier based on the government survey system rather than SPC or UTM coordinates.
Government town-ship code	00	00	000	000	Model is based on Illinois and Indiana identifiers. Alabama, Colorado, Florida, Idaho, Iowa, Michigan, Missouri, Nebraska, Washington, and Wisconsin have government survey-based identifiers, although formats differ as to detail. Oregon has a hybrid identifier with characteristics of both government-survey and map-page identifiers.
Map-page	000 (map) book	000 (map) page and (last digit) block	00	parcel	Model is based on Alaska and California identifiers. Arizona, Georgia, Kentucky, Maryland, New Jersey, New York, Tennessee, Vermont, Virginia, and Quebec have map page-based identifiers, although formats differ as to detail.

Source: International Association of Assessing Officers, Assessment Standards Committee, Standard on Assessment Maps and Parcel Identifiers (Chicago: International Association of Assessing Officers, 1976), with updates added.

8-14--Status of parcel identification systems

State	Standard Parcel Identification System	Type of Identifier	Estimated Percentage of Districts Using Standard Identifier
Alabama	recommended	govt. survey	---
Alaska	none	n.a. */	n.a.
Arizona	required	map page	100
Arkansas	none	n.a.	n.a.

(continued)



Table 8-14--Status of parcel identification systems (continued)

State	Standard parcel identification system	Type of identifier	Estimated percentage of districts using standard identifier
California	required	map page	97
Colorado	required	govt. survey	87
Connecticut	none	n.a.	n.a.
Delaware	none	n.a.	n.a.
Florida	recommended	govt. survey	---
Georgia	recommended	map page	---
Hawaii	required	unique	100
Idaho	required	govt. survey	---
Illinois	recommended	govt. survey	10
Indiana	recommended	govt. survey	---
Iowa	recommended	govt. survey	---
Kansas	none	n.a.	n.a.
Kentucky	recommended	map page	---
Louisiana	none	n.a.	n.a.
Maine	none	n.a.	n.a.
Maryland	required	map page	---
Massachusetts	none	n.a.	n.a.
Michigan	recommended	govt. survey	---
Minnesota	permitted	none specified	30
Mississippi	none	n.a.	n.a.
Missouri	recommended	govt. survey	---
Montana	required	coordinates	---
Nebraska	recommended	govt. survey	---
Nevada	required	---	---
New Hampshire	none	n.a.	n.a.
New Jersey	required	map page	100
New Mexico	required	survey & coordinates	97
New York	required	dual map page	100 by 1980
North Carolina	recommended	plus coordinates	coordinates 2
North Dakota	none	n.a.	n.a.
Ohio	none	n.a.	n.a.
Oklahoma	none	n.a.	n.a.
Oregon	required	govt. survey	---
Pennsylvania	none	n.a.	n.a.
Rhode Island	none	n.a.	n.a.
South Carolina	none	n.a.	n.a.
South Dakota	recommended	coordinates	---
Tennessee	required	map page	---
Texas	none	n.a.	n.a.
Utah	recommended	coordinates	55
Vermont	recommended	dual map page plus coordinates	---
Virginia	recommended	map-subdivision	75
Washington	recommended	govt. survey	82
West Virginia	required	---	---
Wisconsin	recommended	govt. survey	---
Wyoming	none	n.a.	n.a.
Summary	Required: 14 Recommended: 17 Permitted: 1 None: 18	Coordinates: 4 Map page: 7 Dual/combo: 3 Govt. survey: 13 Other: 2	---

\*/n.a.: not applicable.

Additional detail may be found in the appendix.

Sources: Assessment Record System Survey; "Assessment Mapping and Parcel Identification Systems," and other sources.

depends on the type of property, property use codes are a virtual necessity since each property must be assigned to a class. Such classes may, however, be established on tax policy grounds rather than classes that facilitate other analyses (e.g., a land use inventory). Other characteristics than land use, such as structure type, number of dwelling units, and so on, also may be incorporated into property use coding systems. Such composite codes may limit the codes' usefulness to nonassessment users in an MPLDS.

Standard property use coding systems have been developed in 33 States. These States, the general nature of the systems, and estimates of the percentage of jurisdictions using the systems are presented in table 8-15. Standard use codes are required or apparently are required in the case of some States with classified property tax systems in 26 States, however.

### Control of Forms

The power of a State to control the forms used by local assessment districts represents a rudimentary form of standardization of the ways in which property characteristics are described and coded. The rationale behind the control of forms includes ensuring uniformity of application of property tax laws, ensuring that relevant data are collected and maintained, providing documentation of the facts and calculations used in assessing property, and facilitating transmittal of data to the State. Accordingly, most States (39) have some statutory powers over the forms that local assessors use (see table 8-16). The nature of the powers varies greatly. Generally, States are given rather indefinite powers to prescribe forms, and the degree to which such powers are exercised cannot be precisely determined. Of particular relevance to a national MPLDS network are specific controls over the type of forms (e.g., assessment rolls and property records) that would contain the "intelligence" data upon which the MPLDS network would be based. Arizona, California, Florida, Iowa, Kentucky, Minnesota, New Jersey, Oregon, Utah, and Wisconsin are examples of States that exercise rather strong controls over all the forms used locally (similar uniformity in forms also is found in Hawaii and Maryland, in which the State is responsible for assessment). Indiana and Nebraska require assessors to use standard property record cards, and standard property record cards are recommended in seven States. Many standard property record forms, however, are not well-suited as data entry documents and would have to be redesigned before they would facilitate the development of computer files. Moreover, there is considerable variation in the design and information content of standard property records.

### Transmittal of Assessment Records

The transmittal of assessment records from local assessment agencies to State agencies is the final aspect of the readiness of assessment record systems to participate in a national MPLDS network that is examined in this section.

Table 8-15--Status of property use coding

State	Standard use coding system	Nature of system	Estimated percentage of districts using system
Alabama	apparently required	classified property tax (4) <sup>1/</sup>	---
Alaska	none	n.a. 2/	n.a.
Arizona	required	2 digit land use	100
Arkansas	apparently required	7 property-type classes	
California	recommended	2 digit actual/most reasonable use	90
Colorado	required	4 digit land/improvement/personal	100
Connecticut	none	n.a.	n.a.
Delaware	none	n.a.	n.a.
Florida	required	2 digit land use	96
Georgia	permitted	---	---
Hawaii	required	7 use classes	---
Idaho	required	2 digit land/improvement/personal	---
Illinois	recommended	1 digit use	10
Indiana	required	3 digit hierarchical use	100
Iowa	none 3/	n.a.	n.a.
Kansas	none 3/	n.a.	n.a.
Kentucky	none	n.a.	n.a.
Louisiana	apparently required	classified property tax (3)	---
Maine	none	n.a.	n.a.
Maryland	required	SLUCM plus zoning code <sup>4/</sup>	---
Massachusetts	required	classified property tax (4)	---
Michigan	required	6 use classes	---
Minnesota	required	classified property tax (14+)	30
Mississippi	none	n.a.	n.a.
Missouri	none	n.a.	n.a.
Montana	apparently required	classified property tax (18)	---
Nebraska	required	4 digit hierarchical	---
Nevada	none	n.a.	n.a.
New Hampshire	none	n.a.	n.a.

(continued)



Table 8-15--Status of property use coding (continued)

State	Standard use coding system	Nature of system	Estimated percentage of districts using system
New Jersey	required	2 characters use, soil & structure type	99
New Mexico	required	5 use classes	97
New York	recommended	3 digit property type	---
North Carolina	none <u>3/</u>	n.a.	n.a.
North Dakota	none <u>—</u>	n.a.	n.a.
Ohio	required	3 digit hierarchical use	90
Oklahoma	recommended	3 classes	100
Oregon	required	3 digit use	---
Pennsylvania	none	n.a.	n.a.
Rhode Island	apparently required	2 digit real & personal property	---
South Carolina	recommended	4 digit hierarchical use, population, and price code	---
South Dakota	required	up to 6 character use, urbanization	100
Tennessee	required	classified property tax (6)	---
Texas	none	n.a.	n.a.
Utah	recommended	3 digit hierarchical use	100
Vermont	recommended	up to 3 character use	95
Virginia	required	---	100 by 1981
Washington	required	2 digit SLUCM	50
West Virginia	apparently required	classified property tax (4)	---
Wisconsin	required	1 character use	---
Wyoming	none	n.a.	n.a.

1/Number in parentheses is the number of classes.

2/n.a.: not applicable.

3/Property use codes are assigned for assessment-ratio study purposes.

4/Standard Land Use Coding Manual use classifications.

TABLE 8-16--Status of controls of assessment  
forms and the transmittal of assessment data to states

State	Nature of forms control	Nature of data transmittal 1/ 2/
Alabama	Some forms prescribed; PRC <sup>2/</sup> recommended	
Alaska	None	
Arizona	All forms prescribed, furnished, or approved	Property record file tapes
Arkansas	Power to control forms not exercised	
California	Most forms furnished	
Colorado	All forms prescribed	
Connecticut	Some forms prescribed; PRC recommended	
Delaware	None	
Florida	All forms furnished or approved	Property record file tapes
Georgia	Has power to prescribe forms	Has power to require tapes
Hawaii	Not applicable, State assessment	
Idaho	Has power to prescribe forms	Has power to require tapes
Illinois	Very limited powers to control forms; PRC recommended	
Indiana	PRC prescribed	
Iowa	All forms prescribed	
Kansas	None	
Kentucky	All forms prescribed	
Louisiana	None	
Maine	Some forms prescribed	
Maryland	Not applicable, State assessment	
Massachusetts	Some forms prescribed; PRC recommended	
Michigan	Some forms prescribed	
Minnesota	All forms prescribed	
Mississippi	Homestead exemption form prescribed	
Missouri	Some forms prescribed; PRC recommended	

(continued)

TABLE 8-16--Status of controls of assessment forms and the transmittal of assessment data to states (continued)

State	Nature of forms control	Nature of data transmittals <u>1/</u>
Montana	Some forms prescribed	<u>3/</u> Has power to require roll tapes
Nebraska	PRC prescribed	
Nevada	None	
New Hampshire	None; PRC recommended	
New Jersey	All forms prescribed or approved	
New Mexico	Some forms prescribed	
New York	Some forms prescribed or approved	
North Carolina	Some forms prescribed	
North Dakota	None	
Ohio	Some forms prescribed	
Oklahoma	Some forms prescribed	
Oregon	All forms prescribed	
Pennsylvania	None	
Rhode Island	Some forms prescribed; PRC recommended	
South Carolina	Some forms prescribed	
South Dakota	Some forms prescribed	
Tennessee	None; customers of tax-billing service use standard forms	
Texas	None	Property record file tapes
Utah	All forms prescribed	
Vermont	Some forms prescribed	
Virginia	Roll prescribed	Tapes may be required Assessment and property records
Washington	Some forms prescribed	
West Virginia	Most forms prescribed, furnished, or approved	
Wisconsin	Forms prescribed; counties furnish forms to locals	Has power to require records
Wyoming	None	

1/Unless otherwise indicated, an abstract of the assessment roll is transmitted; sales transmittals for assessment ratio studies are excluded from coverage here.

2/PRC means "Property Record Card." Different property record cards may be required/furnished for various types of properties.

3/Tapes are transmittal for counties on computer-assisted appraisal system. Source: IAAO Research and Technical Services Department staff compilation.



The transmittal of some data is essential to the supervision of property tax laws, and all States except Delaware require assessors (or other local government officials) to transmit abstracts of assessment or tax rolls to the State. Such data are statistical and not the intelligence data envisioned in the MPLDS scenario.

A few States (e.g., Arizona, Florida, Georgia, Idaho, Nebraska, Utah, Washington, West Virginia, and Wisconsin) have the power to require the transmittal of either computer tapes or individual property records (see table 8-16). Such transmittals are, of course, necessary to the MPLDS network concept. For reasons that are mentioned later, obtaining the power or obtaining full compliance with a law or regulation requiring the transmittal of tapes may be difficult.

### Conclusions

Assessment record systems may be regarded as a logical although imperfect basis for a national MPLDS network. The readiness of individual jurisdictions and States to participate in such a network varies widely, although the overall readiness is greater than is the case for land title record systems. Upgrading assessment record systems to any sort of uniform status would be costly and time-consuming. However, the pressures on property tax administrators to improve the quality of assessments are such that many system enhancements will be made regardless of the requirements of an MPLDS. Opportunities for intelligent leadership in upgrading assessment record systems in ways that enhance their usefulness to other users abound.

### EXISTING MULTIPURPOSE LAND DATA SYSTEMS

In the last decade, a number of land record systems have been developed that are based in part on assessors' parcel records. These systems are suggestive of the multipurpose land data systems envisaged in Scenario 3, except that none have the capability of monitoring foreign investment in U.S. real estate. Several of the more interesting of these developments are discussed here to depict the status of such systems. The systems can be classified into two broad types: (1) "true" multipurpose land data systems and (2) "add-on" multipurpose land data systems.

#### "True" Multipurpose Land Data Systems

"True" multipurpose land data systems are systems that are designed from the ground up as a multipurpose system that essentially replaces existing manual or computerized subsystems, although system development and implementation may take place incrementally, one subsystem (or purpose) at a time. On-line file inquiry and update capabilities are common features of such an MPLDS and, increasingly, computer-assisted mapping is contemplated as well. Thus, management, planning, and systems analysis, design, development, and implementation issues tend to be addressed early and in a more comprehensive fashion. A "true" MPLDS is therefore likely to be a very ambitious undertaking.

One of the earliest attempts to develop an MPLDS incorporating assessment records was the prototype Integrated Municipal Information System (IMIS) development project in Wichita Falls, Tex. A major component of the system is the Property Valuation and Equalization System (PROVES).<sup>29/</sup> The PROVES module has not been maintained. The Wichita Falls project was one of six similar projects sponsored by the Urban Information Systems Inter-Agency Committee (USAC), all of which proved to be disappointing.<sup>30/</sup>

The Oregon Inter-Regional Information System (IRIS) provides another interesting case study. The IRIS project began in 1972 as a joint effort by the Data Processing Authority of Portland and Multnomah County and the Regional Information Systems Department of Lane County, and by 1975 agencies from three other counties, as well as the Oregon Department of Revenue, had decided to participate in IRIS.<sup>31/</sup> As originally conceived, IRIS would have included systems for assessment and taxation, fleet management, criminal justice, management analysis, accounting, and geocoding, although the assessment and taxation system was the first system scheduled for development. During the course of the development of the system, IRIS received a grant from USAC to develop a telecommunications and data-base management system software package. A number of technical and management problems were encountered in the development of IRIS and, in 1977, IRIS as originally conceived ceased to exist.<sup>32/</sup>

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<sup>29/</sup>U.S. Department of Housing and Urban Development, Wichita Falls Consortium: Property Valuation and Equalization System (PROVES) Application Evaluation Report (Springfield, Va.: National Technical Information Service, 1976); and James E. Ferguson, "A Module from the Wichita Falls Prototype Integrated Municipal Information System," in International Property Assessment Administration 6 (Chicago: International Association of Assessing Officers, 1974), pp.258-69.

<sup>30/</sup>For a discussion of the problems with the USAC projects, see National Academy of Sciences U.S.A.--National Research Council, Assembly of Engineering, Urban Information Systems Inter-Agency Committee (USAC) Support Panel, Local Government Information Systems--A Study of USAC and the Future Application of Computer Technology (Washington, D.C.: National Academy of Sciences, 1976).

<sup>31/</sup>Oregon, Inter-Regional Information System, IRIS Assessment and Taxation System Summary: A Descriptive Introduction to the IRIS A & T System (Eugene, Ore.: Inter-Regional Information System, 1975).

<sup>32/</sup>However, the Lane County Regional Information System Department maintains an assessment and taxation system that is used by three counties; see Richard R. Almy, "The Joint Development and Use of Property Information," Assessors Journal 11 (June 1979): 73-92. For a description of another system development effort in Lane County, see Donald M. Penfold, "Geographic Data System: Lane County, Oregon," in Land Data Systems Now: Proceedings of the Second MOLDS Conference (Falls Church, Va.: American Congress on Surveying and Mapping, 1979), pp.143-159.



The Forsyth County Land Records Information System (FCLRIS) in North Carolina has similarly experienced a number of vicissitudes, although system-development activities are still underway. The agencies participating in the development of FCLRIS include the county offices of the register of deeds, planning and zoning, building inspection, environmental affairs, tax collection, and assessment as well as the special assessments agency for the city of Winston-Salem.

Two notable features of FCLRIS have accounted for most of the system's problems: the digitization of assessment maps and the computerization of land title records. First, the decision to digitize assessment maps meant that new assessment maps had to be compiled, and this turned out to be more expensive and time-consuming than expected. Difficulties also were encountered in the development of software and the selection of hardware. The former problems appear to be solved and the selection of hardware is planned for 1979.

The decision to computerize land title records resulted in a situation in which there were incompatible goals among the agencies participating in FCLRIS.<sup>33/</sup> As developed, the system serves the needs of users who wish to obtain information on specific parcels (e.g., in conveyancing) better than it does users who wish aggregate data (e.g., in planning).

A final example of a "true" MPLDS, which also has experienced problems and delays in implementation, is the Integrated Physical Data System (IPDS) in Detroit, Mich. IPDS is designed ultimately to serve the needs of the departments of assessment, the treasurer, planning, building and safety, health, and eventually police and fire protection.<sup>34/</sup> Development of IPDS has been slowed by ineffective project management, communications problems among city officials and the consultant, and computer hardware and software problems.<sup>35/</sup>

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<sup>33/</sup>Almy, "The Joint Development and Use of Property Information," p.79.

<sup>34/</sup>Booz, Allen, and Hamilton, Inc., Integrated Physical Data System: IPDS Coarse Systems Design and Implementation Plan (Detroit, 1976).

<sup>35/</sup>William B. Knapp, "Administrative Problems in the Implementation of the Fiscal Data Portion of a Multipurpose Land Data System," in Land Data Systems Now: Proceedings of the Second MOLDS Conference (Falls Church, Va.: American Congress on Surveying and Mapping, 1979), pp.245-251.



Other noteworthy MPLDS developments include the Wichita-Sedgwick County, Kan., automated real estate information system (REIS); the Hartford, Conn., Land-based Planning Information System; and the Riverside County, Calif. information system.<sup>36/</sup>

Finally, several pilot projects deserve mention. The most ambitious of these is the Computer Assisted Mapping and Records Activities Systems (CAMRAS) project of a consortium of 21 government and industry organizations headed by the American Public Works Association.<sup>37/</sup> Memphis, Tenn., was selected as the first demonstration site. Although the Memphis demonstration appears behind schedule, the American Public Works Association has published three parts of a Computer Assisted Mapping and Records Activity System Manual.<sup>38/</sup>

A pilot project that is less ambitious than CAMRAS is the Regional Mapping and Land Records Program (RMLR) of the Delaware Valley Regional Planning Commission, which has its headquarters in Philadelphia, Pa. The RMLR effort involves five counties, five utilities, and other interests in southeastern Pennsylvania.<sup>39/</sup> The purpose of the project is to evaluate the costs, benefits, methodologies, and applications of large-scale digital-mapping and related land record improvements.

A deliberately "unambitious," uncomplicated, and inexpensive MPLDS experiment in Rappahannock County, Va., deserves mention as the type of MPLDS that might be developed in small, rural counties. The system, known as RAPLI-II, which is an acronym for Rappahannock Land Information in the second, experimental stage of system development, was designed to provide assessment, land transfer, and land use data.<sup>40/</sup>

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<sup>36/</sup>Almy, "The Joint Development and Use of Property Information," pp.76-77  
<sup>37/</sup>For a recent report on the status of this project, see William L. Bathke, "Computer Assisted Mapping and Records Activities Systems (CAMRAS)," in Land Data Systems Now: Proceedings of the Second MOLDS Conference (Falls Church, Va.: American Congress on Surveying and Mapping, 1979), pp. 121-141.

<sup>38/</sup>Bernard Schechter, Richard C. Roberts, and Marshall Wright, Jr., CAMRAS Manual, Part 1, Aerial Photography for Photogrammetric Mapping (Chicago, 1979); A.V. Bennetson, et al., CAMRAS Manual Part 2, Procurement Specification for an Interactive Graphics System (Chicago, 1979); and Arthur G. Gross, et al., CAMRAS Manual Part 3, File Format for Data Exchange Between Graphic Data Bases (Chicago, 1979).

<sup>39/</sup>Richard P. Byler, "Building a Constituency for Better Mapping and Land Records and Mastering the Technology--the RMLR Southeastern Pennsylvania Experience," in Land Data Systems Now: Proceedings of the Second MOLDS Conference (Falls Church, Va.: American Congress on Surveying and Mapping, 1979), pp. 161-179.

<sup>40/</sup>Gene Wunderlich, Computer-Assisted Land Information System for a Rural County--RAPLI-II, Agricultural Information Bulletin No. 406 (Washington, D.C.: U.S. Department of Agriculture, Economic Research Service, 1977).

In summary, the development of multipurpose land data systems has been slow, and they are few in number. However, in view of the technical, financial, and administrative obstacles that each of these pioneering efforts had to overcome, the limited successes to date should be viewed with some optimism: future developments will be able to benefit from the experiences gained in pioneering efforts. Clearly, it would be a mistake to characterize the developments to date as failures, except perhaps in terms of unrealistically high expectations.

### "Add-On" Multipurpose Land Data Systems

"Add-on" multipurpose land data systems employ existing land records (usually assessors' parcel files) in new ways (usually in planning applications) without fundamentally changing the existing ("host") land record systems. Such an MPLDS is developed sequentially by loosely linking files without there first being an overall system design. They tend to have more limited objectives, less complicated data-processing requirements, and, in a relative sense, higher success rates. Many also go unreported. However, several of the "add-on" MPLDS that have been described in the literature are mentioned here to illustrate some of the purposes that such systems can serve.

An excellent example of an "add-on" MPLDS is the Urban Development Information System (UDIS) in Fairfax County, Va.<sup>41/</sup> UDIS enables public officials, private developers, and others to monitor the urban-growth process, and it facilitates the decision-making process as it relates to land and urban planning. It can be used to plan the location of public facilities, to determine the adequacy of the school system, and to regulate sewer hookups. UDIS also has produced reports on apartment vacancies that were useful to the assessor in the appraisal of rental residential properties.<sup>42/</sup>

Other jurisdictions that have adapted assessment records to planning applications include Baltimore, Md. (for redlining studies and fire-station site selection); El Paso County, Colo. (for administration of zoning laws, fiscal analyses, etc.)<sup>43/</sup>; Los Angeles, Calif. (Land Use Planning Management Systems); and State of Montana (merging Landsat imagery with other files).<sup>44/</sup>

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<sup>41/</sup>Virginia, Fairfax County, Office of Research and Statistics, A Handbook for Creating an Urban Development Information System (Fairfax, 1974).

<sup>42/</sup>John L. Hyson, Jr., et al., Vacancy Analysis of Rental Apartment and Townhouse Projects in Fairfax County, Virginia (Fairfax, Va.: Fairfax County Office of Research and Statistics, 1973).

<sup>43/</sup>William Wildman, "Computers: Pros and Cons," Planning 45 (May 1979): 18-21.

<sup>44/</sup>"Landsat Takes a Look at Big Sky Country: Montana Launches Four Projects with WRAP" and "Montana's Geo-Data System and How It Grew," Plain Brown Wrapper (August/September 1978, newsletter of NASA's Western Regional Applications Program, WRAP).



### Other Initiatives

There have been other initiatives in two States that bear on the development of an MPLDS network. In Minnesota, the Intergovernmental Information Systems Advisory Council (IISAC) has been formed to foster all types of intergovernmental data flows and computing, including the development of computerized land records and assessment systems.<sup>45/</sup> In April 1979, IISAC issued a request for proposals to develop pilot residential and agricultural property computer-assisted appraisal systems in three medium-sized Minnesota counties. Among the system design specifications is a requirement that the systems incorporate the land use coding system developed by the Minnesota State Planning Agency. In North Carolina, a Land Records Management Program (LRMP) has been established in the State Department of Administration, Office of Administrative Analysis. Among other things, LRMP administers grants for improving land records and has promulgated specifications for base and cadastral maps and for uniform parcel identifiers.

### LAND RECORD SURVEYS

Several Federal Government agencies conduct surveys that collect land data. While it is not practical to enumerate all such surveys here, several of these surveys are of particular interest in an evaluation of the survey multipurpose land data system (Scenario 4) described in chapter 7.<sup>46/</sup> These are the Annual Housing Survey, the Census of Agriculture, the Census of Housing, and the Real Estate Sales Study (GP-31) (which are conducted by the U.S. Bureau of the Census), together with the June Enumerative Survey and the Resource Economics Survey (which are conducted by the U.S. Department of agriculture).<sup>47/</sup> The amount of data collected in these surveys, the frequencies of these surveys, and most important, the survey designs all may provide insights into the design and feasibility of a survey MPLDS. Therefore, these aspects of the selected surveys are discussed in terms of the relevant specifications of the survey MPLDS described in chapter 7.

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<sup>45/</sup>William J. Craig, "Land Records and Computer Assisted Assessment" (paper presented at the Conference of the Urban and Regional Information Systems Association, Kansas City, Mo., August 8, 1977).

<sup>46/</sup>See U.S. Bureau of the Census, A Directory of Federal Statistics for Local Areas: A Guide to Sources, 1976 (Washington, D.C.: U.S. Government Printing Office, 1978); and Executive Office of the President, Office of Management and Budget, Statistical Services of the United States Government, rev. ed., 1975 (Washington, D.C.: U.S. Government Printing Office, 1976).

<sup>47/</sup>Two surveys that indirectly pertain to land data, the Survey of Local Assessment Records (GP-1) and the Survey of Real Estate Transfer Records (GP-2), which are surveys made in preliminary phases of the quinquennial Census of Governments, are not included here because they are surveys of local government officials and inquire about the nature of land records, not about the circumstances and characteristics of individual parcels. The quinquennial censuses of business (e.g., retail trade, wholesale trade, and selected service industries) have been excluded from consideration because of the limited amount of land data that they collect.



Since the survey MPLDS is viewed as a survey of nationwide scope in which the ultimate sampling unit is a parcel of (privately owned) land, the population to be sampled is on the order of 90 million parcels. This number compares with the 63 million housing units that are the population for the Annual Housing Survey and the decennial Census of Housing, the 5 to 8 million transfers of real property per year that are the population for the Real Estate Sales Study of the quinquennial Census of Governments, and the 3 million farms that are the population for the quinquennial Census of Agriculture and the Department of Agriculture surveys.

With respect to the sample frame, the most likely frame will be a list frame based on assessment rolls. Since foreign-owned parcels constitute the small portion, (among others as yet unspecified) of all parcels on which the survey MPLDS is to provide statistical data, the sample design will have to take into account the expected number of such parcels in each frame. The number of foreign-owned parcels is unknown but is estimated to be on the order of 0.25 percent of all parcels or about 225,000 parcels (see chapter 20).

A further specification of the survey MPLDS is that the data (on foreign-ownership) have statistical reliability in each State. This means that if a sample of 30 foreign-owned parcels is assumed to be large enough to provide statistical reliability, the sample of parcels that would have to be drawn for the "average" State would be on the order of 12,000 parcels, assuming that foreign-owned parcels were randomly distributed throughout the State's population of parcels.<sup>48/</sup> Thus, the national sample would be about 600,000 parcels. This number is smaller than any of the three (5-, 15-, and 80-percent) samples of the Census of Housing but larger than the 185,000 transactions surveyed in the Real Estate Sales Study, the 78,000 housing units sampled in the Annual Housing Survey, the 36,000 landowners surveyed in the Resource Economics Survey, or the 16,000 area segments in the June Enumerative Survey.

The requirement that there be statistically reliable results for each State as well as the nature of land-record systems in the United States dictates that multistage sampling will be necessary in the survey MPLDS. The sample frame probably will vary from State to State. In any case, the first stage will be States. Except where parcel files are centralized, second-stage units will be counties or smaller local governments, depending on the State. The last stage will, of course, be parcels. An additional, intermediate stage (e.g., assessment maps, volumes in the assessment roll, etc.) may be necessary if parcel files are not automated. Many existing surveys (e.g., the Real Estate Sales Study) employ multistage sampling.

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<sup>48/</sup>This probably is not a reasonable assumption, since single-family houses constitute about 55 percent of the total parcel count, and such properties are probably not attractive to non resident aliens.

If it were decided to exclude single-family houses from the survey MPLDS, the sample sizes could be reduced by about 50 percent. However, the feasibility of this alternative will be affected strongly by the ease with which property use can be determined and whether parcel files can be sorted according to property use.

An alternative sampling approach that may prove attractive is multiphase sampling in which certain, limited information may be collected from a large sample and probably more detailed information would be collected from sub-sample(s) (e.g., foreign-owned property). The Resource Economics Survey uses this technique. In any case, the sample designs of the surveys mentioned here are quite complex, and formulating a sample design for a survey MPLDS should not prove to be an insurmountable problem.

A larger question is whether there are unmet needs that a survey MPLDS could supply. Existing surveys (except the Census of Housing and the Annual Housing Survey) appear to collect relatively greater amounts of information on business activities and on the characteristics of occupants, operators, and owners than they do on property characteristics. Thus, a survey that supplants existing surveys may not be accurately characterized as a "land data" system. This may be a trivial point because a very large amount of information is collected for each sample unit in all but the Real Estate Sales Study. Nonetheless, the relationship of a survey MPLDS to other remaining "limited-purpose" surveys is an important question.

The relationship between sample size, frequency of sampling, and cost per sample unit is an equally important issue. In chapter 7, it was suggested that a cost in excess of \$50 per sample unit could be expected. This translates into a total cost of about \$30,000,000 for a survey. For a survey MPLDS to be useful in monitoring foreign ownership in real estate, an annual survey would be desirable, although a quinquennial survey might be acceptable. Obviously, annual costs in the range of \$6 to \$30 million are substantial, and annual subsidies in these amounts for the development of an MPLDS network might be equally desirable.

## CONCLUSIONS

### Readiness

Several conclusions can be made regarding the readiness of U.S. land record systems to participate in an MPLDS network:

1. Existing land record systems are dispersed among counties and smaller units of government. Generally speaking, in each such unit of government, a land title record and an assessment record system can be found.
2. Of the two types of record systems, assessment record systems more nearly match the specifications of an MPLDS, and more progress is



being made in modernizing assessment record systems. Therefore, assessment record systems are regarded as the best basic "building blocks" of a national MPLDS network.

3. Nevertheless, the quantity and quality of the information contained in assessment record systems varies widely.

4. Moreover, the readiness of State government agencies to receive parcel files from local governments varies widely. Some States have been active in standardizing assessment records and in developing computer-assisted appraisals systems and are now ready to participate in an MPLDS network. Most States, however, are not ready.

5. In any case, the diversity in law and practice among the States is such that the funneling of parcel data to the Federal Government would require a "Rube Goldberg" system, and a detailed system analysis for such a system might reveal fundamental incompatibilities in the ways properties are described, thereby limiting the usefulness of an MPLDS network to the Federal Government. However, such problems can be minimized if the Federal Government takes the lead in developing standards and specifications designed to ensure compatible local- and State-government systems.

The survey MPLDS seems quite problematical. It would be a large undertaking, and it is far from clear whether a survey MPLDS could feasibly supplant existing Federal surveys that collect large amounts of information not directly related to land parcels. It also seems likely that the feasibility of the survey MPLDS will be directly related to the status of State and local land record systems, and the more advanced those systems, the more feasible will be the survey MPLDS. Thus, the feasibility of both the MPLDS network and the survey MPLDS is closely related to the status of State and local land record systems.

#### Benefits and Costs

The benefits and costs of land record system development activities have not been stressed in this survey of land record systems for two reasons: First, very limited data are available. Second, there are major limitations in the available data.

With respect to the costs of assessment record systems, practices vary widely regarding the allocation of costs to the assessment function (i.e., such costs as data processing charges, office space charges, and fringe benefits may or may not be allocated to the assessor and, if allocated, may not be realistically allocated). In addition, differences in the nature of the assessment task (i.e., in the nature of the parcels being assessed), in the quality of assessment programs, and in regional costs of living need to be accounted for. Moreover, program budgets and work program statistics are rarely prepared. Therefore, any comparisons that are made must be made



on a gross basis, and it is difficult to account for differences. For example, reported per-parcel costs for real estate assessment averaged \$2.25 in Ohio in 1977 and \$29 in New York in 1978 (nationally, gross assessment costs per parcel for ongoing operations were estimated to average around \$6 and \$12 and gross costs per parcel for a reappraisal, around \$18 and \$24).

The differences in the reported costs of the development of computer-assisted appraisal systems are equally perplexing. For example, reported costs of the adaption of a market approach (e.g., multiple regression analysis) valuation module from a State's or a mass-appraisal firm's computer-assisted appraisal system to another jurisdiction's system ranged from no cost to \$800,000 in a 1975 survey of computer-assisted valuation systems.<sup>49/</sup> The reported costs of other system-development alternatives (e.g., developing the system in-house without significant outside assistance and developing the system in-house but with the assistance of a consultant) were as follows:<sup>50/</sup>

	<u>Without assistance</u> <u>Valuation module</u>		<u>With consultant</u> <u>Valuation module</u>	
	<u>Cost</u>	<u>Market</u>	<u>Cost</u>	<u>Market</u>
Number of jurisdictions supplying cost information	9	4	4	7
Range in reported cases	\$ 1,500	\$ 3,500	\$ 20,000	\$ 5,000
	to	to	to	to
	\$150,000	\$40,000	\$140,000	\$60,000

The benefits of land record system development activities often are not readily quantifiable.<sup>51/</sup> Nevertheless, the benefits of such activities usually can be perceived. These benefits tend to fall into one or more of the following broad categories: (1) more and better information on which to base analyses; (2) more accessible information; (3) lower or stabilized costs, the elimination of duplicative costs, and shared costs (which may make a sophisticated system affordable); (4) increased information security; and (5) general improvements in the provision of governmental services.

<sup>49/</sup>Assessment Practices in the United States, p.226.

<sup>50/</sup>Ibid., pp.219-226.

<sup>51/</sup>Examples of attempts to quantify the benefits of such activities include Vincent J. Geraci and James L. Plourde, "Benefits and Costs of Improved Property Tax Assessment Administration," in Analyzing Assessment Equity (Chicago: International Association of Assessing Officers, 1977); and Barbara Larson et al., Land Records: The Cost to the Citizen to Maintain the Present Land Information Base, a Case Study of Wisconsin (Madison: Wisconsin Department of Administration, 1978).

### Recommendations

The benefits that can be obtained from improved land record systems have provided and will continue to provide the impetus for State and local efforts to improve land record systems. The obstacles that must be overcome in each such activity, and particularly the problems that must be solved to successfully implement an MPLDS, suggest that leadership and assistance are needed in several aspects of MPLDS development.

A case can be made for such leadership and assistance on a national basis, regardless of whether a national MPLDS network is deemed feasible for monitoring foreign investment in real estate. A support panel of the National Academy of Sciences has recommended that an information systems resource center for local governments be established.<sup>52/</sup> As envisaged by the support panel, the resource center would be largely limited to serving as an information clearinghouse, although it would have the capability of evaluating existing systems. The North American Institute for Modernization of Land Data Systems (MOLDS) conceivably might be restructured to serve such a purpose. In any case, we concur with the recommendation that a national information systems resource center for local governments be established.

At the local level, many of the problems associated with the implementation of a MPLDS can be directly attributed to the fact that local governments often are not organized in a way that gives clear leadership responsibilities to a single agency. Rather, coalitions are relied upon.<sup>53/</sup> We recommend instead that cadastral offices be formed and that they be made responsible for the implementation and maintenance of the MPLDS. Assessors' offices may provide the nuclei of such cadastral offices.<sup>54/</sup>

We recommend also that State and Federal Government agencies develop information-processing protocols and system standards to ensure that

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<sup>52/</sup>National Academy of Sciences U.S.A.—National Research Council, Assembly of Engineering, Urban Information Systems Inter-Agency Committee (USAC) Support Panel, An Information Systems Resource Center for Local Governments (Washington, D.C., 1976).

<sup>53/</sup>For a discussion of such cooperative efforts, see Almy, "The Joint Development and Use of Property Information"; and Dan Bernard, "Management Issues in Cooperative Computing", Computing Surveys 11 (March 1979): 3-17.

<sup>54/</sup>See Almy, "Cadastres in Property Tax Administration."

intrastate and interstate analyses of land data can be made. We believe, however, that any such protocols and standards should stress compatibility with the requirements,, of higher levels of government while providing the flexibility to fulfill local government requirements since local governments will continue to be the chief users of MPLDS.

Finally, we recommend that the Federal and State Governments assist in implementing systems that must be installed to establish a State- or Federal-level MPLDS network. At a minimum, the Federal and State Governments should provide the basic research and the computer software needed to establish State and national MPLDS networks. They also should be required, at a minimum, to reimburse local governments for the incremental costs of developing systems and of collecting data that are exclusively associated with State or Federal needs or functions. Additional assistance in the form of system-development grants and technical assistance in installing MPLDS also may be needed to influence the course and pace of MPLDS development.





Chapter 9  
LAND INFORMATION SYSTEMS ABROAD

Martin D. Miller

INTRODUCTION

This chapter is concerned with the experiences of several foreign countries in regard to land record systems. Following the review of a classification system for multipurpose land record systems (cadastres), the results of a survey of land record system development and data content in five foreign countries are discussed. The chapter concludes with a comparison of the experience of the five countries and a review of the possible implications for multipurpose systems in the United States.

In many countries, multipurpose land data systems (MPLDS) of the type discussed in this report are called cadastres.<sup>1/</sup> A cadastre is a public inventory of properties, arranged in a deliberate, methodical fashion, combining topographical identification (usually in terms of a large-scale map) with a property registry in which variable types of information are recorded (e.g., ownership, legal status of parcels, physical descriptions, and so forth). It is customary to employ a numbering system to relate map locality and registration. Thus, the cadastre is comprised, at its most rudimentary conceptual level, of a clearly differentiated inventory of land parcels, geographically sited and measured, and a complementary record of data deemed appropriate to the parcel. Such compilations of land data presuppose purposes such as tax assessment, entitlement or conveyancing, and land use design or regulation. They are, therefore, the objects of economic and social policy.

Contemporary cadastres incorporate an index, or indexes, for rapid insertion and retrieval of information. Usually at least one index or

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<sup>\*</sup>/ Project Manager, Lincoln Institute of Land Policy, Cambridge, Mass. The assistance of Hans K. Larsen, University of New Brunswick and Hartmut Ziemann, National Research Council of Canada, in carrying out the surveys of foreign cadastres and critical review of earlier drafts of this manuscript is gratefully acknowledged.

<sup>1/</sup> Cf. Nittinger, "Cadastral Surveying as an Instrument of Political, Economic and Social Development," United Nations Interregional Seminar, West Berlin, 1974.

one element of the index is geographically oriented. Beyond that characteristic, however, the actual organization of a national cadastre may vary widely as determined by a wide range of motivations and concepts. Most continental European cadastres are based on tax assessment needs. The regulatory potentialities inherent in a cadastral system (e.g., foreign ownership, zoning, environmental controls, etc.) also can be motivational factors. In fact, a commonly used classification system of cadastral "types" is founded upon three initiating purposes and continuing uses: (1) fiscal; (2) juridical; and (3) environmental, plus a geographic locator.

(1) The fiscal cadastre has as its purpose the retention of data regarding real property (data content relative to tax roll information and assessment).

(2) The juridical cadastre is a compilation of data concerning land title recording and conveyancing (i.e., grantor-grantee, date and type of transaction, interests and rights, consideration, easements, liens and encumbrances, boundary descriptions, and annotations).

(3) The environmental cadastre is concerned chiefly with land use and land cover inventories, zoning, tabulations of uses, and restrictions, plus related demographic materials.

The geographic locator is concerned with topographical and spatial data (parcel identification and location, etc.). It usually is included as a subelement under the other cadastral types, serving as an index for spatial location.

All cadastres are "multipurpose" in a strict sense, since the compilation of a body of land data, for whatever specific purpose, serves a certain diversity of use. Still, the three-part classification scheme above enjoys a basic underlying logic, since, for example, a predominantly environmental cadastre may display clearly defined differences from one whose fundamental concern is the containment of legal descriptions of land. For the purposes of this discussion, the term "multipurpose" refers to those cadastres exhibiting a distinct range of objectives from which statistical and analytical resources are provided.

The cadastre, as it has evolved to the present time, also rests in part upon technological refinements in such areas as cartography and surveying. Conceptual and empirical questions arise as to the forms of measurement and accuracy standards that are to be used. This is particularly the case since most cadastres are now using electronic data processing for at least part of their operation. Also, the viability and application of cadastre systems are affected by the technology used to collect data and maintain the data base once it is in operation.

Most cadastre systems were developed upon a base of antecedent conditions, such as prevailing land tenure arrangements. The cadastre, in sum, must rest upon some conceptual unit of land or "parcel." Despite the widespread use of parcels as a means of subdividing the large quantities of land data, there still exists a considerable diversity in the data parcelization process. For illustration, some cadastres build upon the



title registration parcel, some on the assessment (taxation) parcel, and others employ a "use" parcel.

Some cadastres use a unique parcel identification system that is completely separate from previous registration or data file systems. The Maritime Provinces of Canada, through the Land Registration Information Service, presently are using both the recording and registration (modified Torrens) systems as the basis for a comprehensive multipurpose cadastre. Geographical coordinates are being utilized as one of several means of parcel identification.

Sweden and Taiwan both have adopted an even broader concept of the multipurpose cadastre. The cadastral systems in those two countries seem less inhibited by conventional land tenure practices and patterns than those in the Maritime Provinces. For example, cadastres in Sweden and Taiwan include substantial demographic data and, in the case of Taiwan, an active concern with land reform. In addition, the diversity of legal foundations (e.g., differences between civil and common law countries) also affects the base upon which cadastral systems are constructed, both as to law and the forms of registration involved. Both the Canadian province of Quebec and the State of Louisiana are examples of jurisdictions featuring legal practices based on the Napoleonic Code. This is in contrast to the remainder of the Canadian provinces and the American States whose legal systems have been derived from the common law. There is little doubt that the roots of the legal system in a jurisdiction (e.g., Roman vs. common law), have a decided impact on such general matters as landownership, the rights and duties that such ownership implies, and related national policy. However, the legal basis of a cadastral system also influences specific areas such as parcel identification, the kinds of data maintained in the title file, and the format within which such records are maintained.

In addition to the above considerations, the political structure of the state also affects the conformation of the cadastre. The needs and responsibilities of subnational components of government may vary considerably, depending on whether the state embraces a federal or unitary framework. In this regard, the United States can be contrasted with Sweden. Items such as systems of numbering and description frequently arise from social and political practice, rather than from a regard for consistency or a desire to conform to topography.

Despite the above tendencies, there is a growing trend to identify land parcels by use of map coordinates (e.g., Switzerland, Sweden, and the Netherlands). This trend is both due to and to help facilitate use of computer techniques for data storage and retrieval. This trend also tends to facilitate nationwide uniformity, a characteristic that is very important to the widespread use of a multipurpose cadastre.

Based upon a review of existing cadastres in several countries, Henssen identifies 10 forms of data that are typically included in a fiscal cadastre:<sup>2/</sup>

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<sup>2/</sup> Cf. J.K.G. Henssen, "Cadastres, Including Some Aspects of Assessment of Real Property," Office International du Cadastre, Apeldorn, Holland, circa 1974.

1. Location.
2. Size.
3. Name of proprietor or claimant.
4. Parcel number and rights attached thereto, with reference to juridical cadastre.
5. Current land use.
6. Soils (including qualities for agriculture).
7. Value of parcel.
8. Revenue of parcel (per year or other applicable period).
9. Tax rate.
10. Taxpayer's name (i.e., proprietor or user).

To this compendium of data is sometimes added additional environmental and even demographic data. Such data can then be employed for planning future land use and other activities, as is the current practice in Sweden. It has been argued that this capability is a major benefit of the multipurpose cadastre.

The existence of a multipurpose cadastre also implies some form of administration or coordination at the national level. Unitary-type states may well operate the cadastre from the level of national administration, as is the case in the Swedish system. On the other hand, countries with a federal structure may limit the role of the national government to one of guidance and coordination, with states and provinces assuming the larger role in the development and operation of the cadastre. This has been the approach adopted in the Federal Republic of Germany and one that might appear preferable for the United States in the event that some form of cadastral development takes place.

The remaining sections of this chapter extrapolate from a number of foreign cadastral systems surveyed for this study. Hopefully, the implications of this review will prove useful in considering the entire range of alternatives concerning land data systems available for possible adoption in the United States, of which the multipurpose cadastre is but one.

A recapitulation of the experiences of the countries surveyed suggests several objectives related to land data and corresponding systems that cadastral-type systems ought to include:

1. Completeness, relevancy and sufficiency of the data.
2. Standardization of definitions, software, and components.
3. Professional competency in the construction and management of the information systems.
4. Specific benefits such as the elimination of duplication.
5. Economic advantages provided by efficient information systems.

At present, land data compilation in the United States can be fairly described as being heterogeneous and disconnected, frequently to be characterized as nonstandardized, featuring duplication of effort, poor data accessibility, insufficient data quality, and in many cases, is not supportive of related socioeconomic activities.



## NATIONAL CADASTRES--MULTIPURPOSE LAND DATA SYSTEMS

The following survey of five national cadastres--for France, the Federal Republic of Germany, Sweden, Canada, and Taiwan (Republic of China)--is not presented as a rigorous inductive analysis. Nor is it feasible to construe these models as a sample of cadastre systems. Rather, they must be dealt with as autonomous entities in which a striking array of variables contribute to the cadastres' design and function. They differ in scope. The Canadian model, in fact, is restricted here to a regional compact of three provinces and, also, only two of the German states are used. There are differences, state to state, in the Federal Republic.

Yet it is necessary to subject the collected data to some measure of comparative analysis. To this end, some of the information gathered was by means of a standardized questionnaire, employed to sharpen, where possible, the comparative categories and to guide these investigative efforts.

The principal characteristics of this questionnaire were inquiries related to the data compilations of all three types of cadastres (fiscal, juridical, and environmental) and the procedural systems of data processing and indexing.

The five systems reviewed are of considerable interest relative to their experiential applicability to American policy. France is a unitary state with a strong organization of administrative government, indeed, a tradition of administrative innovation, and a complex economic character. Germany is a federal republic of fairly recent creation with a long-established continuity of administrative preoccupation. Canada also is a federal state with a singular geographic composition and ethnic diversity. Sweden is a unitary monarchy with a long-standing dedication to advanced policies of social democracy. Taiwan is ostensibly a unitary republic of recent origins, occupying a land area historically linked to the Chinese mainland but more recently under Japanese sovereignty. Since the government of Taiwan lays claim to being the legitimate government of the entirety of China, it is, in a sense, a "government-in-exile."

Three states are European, one is North American, and one is Asian. All five are pro forma parliamentary democracies, with Taiwan less strictly exhibiting a "parliamentary" form of the European type. Three are republics and two are constitutional monarchies. All five are "advanced" industrial states. Three of them occupy national territories of ancient delineation, while two of them are states enjoying large amounts of unexploited land. One of the countries involved occupies a territory gained by recent direct occupation. Canada is the world's second largest nation in terms of national territory; Sweden currently utilizes only about one-quarter of her land area in terms of cultivated use. Populations are 53 million in Germany, 45 million in France, 22 million in all of Canada, 12 million in Taiwan, and 8 million in Sweden. The European states have fairly homogeneous populations in terms of ethnic character, while Canada is self-consciously composed of two "founding" peoples, the deux nations, English and French. The Chinese refugees from the mainland, the remnants of the Nationalist regime overthrown by



the Communists, mingled with the indigenous population substantially also Chinese (Taiwan was ceded by China to Japan in 1895 and Japan governed the island, as Formosa, until 1945).

Table 9-1 Selected characteristics of countries in survey

Item	Sweden	Federal Republic of Germany <sup>1/</sup>	France	Maritime <sup>2/</sup> Provinces, Canada	Taiwan
Area (sq. miles)	173,423	95,733	212,700	3,484,597 (52,000) <sup>3/</sup>	13,886
Population (millions)	8	53	45	22 (1.5) <sup>3/</sup>	12
Governmental system	Unitary	Federal	Unitary	Federal	Unitary
Central purpose of national cadastre	Multi- purpose	Juridical/ Fiscal	Fiscal	Multi- purpose <sup>3/</sup>	Multi- purpose

<sup>1/</sup> Country total, although only two states included in survey.

<sup>2/</sup> Country total, but not all provinces included in survey.

<sup>3/</sup> Maritime Provinces only.

In terms of existing governments, all five presently have stable, centrist-oriented governments. Taiwan's current situation is most unusual, however, having intimate commercial relationships with numerous states but not enjoying recognition as a sovereign state. There are a number of parallel factors among the European and North American models. These four governments are democracies that quite consciously lean toward a "social democratic" outlook in varying degrees. All five are quite heavily industrialized and have "mixed" economies combining private enterprise with governmental initiatives. All five have long-established systems of land tenure (in the case of Taiwan, it must be supposed that the current government recognized the quite comprehensive land survey system instituted by the Japanese). All the states reveal a strong preference for the concept of a professional "civil service" dating at least to the 19th century and, in the instance of Taiwan, indirectly back to the ancient Mandarinic system.

All of the states, in various ways, have displayed a commitment to a highly professionalized civil service. The French traditions go back into the 17th century, the German to the Prussian reforms of the 18th century, the Canadian to the entire development of the English civil service having its roots in the Hanoverian era, and the Swedish to the 19th century. Both China and Japan have been influenced strongly by German models of state bureaucracies since the late 19th century. This emphasis on professionalism is worthy of note, if only for the reason that this preference for a civil service both constitutionally and customarily separated from political influence is by no means universal, and examples of states not featuring this preference are numerous, including the United States.

## France

France is a unitary republic under the Constitution of the Fifth Republic of 1958. The 89 departments are administrative units. Despite a history of political volatility, France has enjoyed a long continuity of administrative development. The territory of France consists of 212,700 square miles.

The French cadastre has been long-established, despite changes of government. It presently operates under the administration of the Ministry of Finance. It is maintained by means of several large administrative districts that incorporate fiscal and technical affairs. It is a fairly comprehensive, integrated national cadastre.

The principal focus of the French national cadastre is upon the fiscal cadastre that incorporates elements of legal and environmental data. The informational base of this fiscal cadastre is a hierarchically numbered parcel system based upon municipalities, sections, and sequential numbering. Ownership is registered, to include type (i.e., individual, partnership, corporation, or trust). Size is indicated. Assessed value is established on rental value for improved property and harvest yield expectancy for agricultural land. This latter factor is established by the Ministry of Finance by multiplying the product of the parcel by a factor derived from soil type, climatic conditions, and other physical criteria. The residence of owners is recorded, but not that of "parent" companies. There is no indication of citizenship or alien status of the owner.

The assessment function is a responsibility of the Ministry of Finance that directly submits tax bills to the legal owners.

This fiscal cadastre is paralleled in the French case by what is termed the Hypothec or "mortgage book." This registry is in effect a form of a juridical cadastre. Grantor and grantee appear here, as well as the type of transaction, including sale price. Also included are easements, liens, covenants, leaseholds, and reservations. Zoning information is included. A notary's copy of the instrument is filed.

An index does not exist as a separate entity, save for an owner's name index to facilitate abstract searches. No environmental information is compiled, except those land use classifications established by the Ministry of Finance's "harvest expectancy" formula.

The French cadastre is a rudimentary one in terms of breadth. It does, however, include an identification system for the numbering of parcels in sequential order, geographically arranged, and what is in effect a system of deed registration. Its purpose is almost wholly concerned with the assessment function and the need to identify ownership for legal purposes. It has no significant system of land classification nor does it embrace the collection of demographic data. It is not ostensibly connected with any ongoing enterprise in land use planning. In a manner of speaking, it could be said that the French cadastre is the least ambitious of the models presented here, its most prominent cadastral feature being what the Ministry of Finance terms its "hierarchical"



system of numbering parcels for identification purposes based on a national grid. The cadastre is "multipurpose" only in a strict sense of combining assessment and transactional data.

### Federal Republic of Germany

The Federal Republic of Germany consists of 10 "federal states" (Länder), plus West Berlin. It was established in 1947, formalizing the postwar partition of Germany by the occupying allied powers. It has a land area of 95,733 square miles.

There is no explicit national cadastre in the Federal Republic, the enabling legislation and the maintenance of the land data inventories falling under the authority of the federal states.<sup>3/</sup> Yet the states have pursued the matter of land data systems with both vigor and sophistication, the origins of land data registration in Germany going back to the late 18th century and, later, to the Napoleonic register of properties. Overall, the origins of the conception appear to be French, but much augmented to include such other considerations as urban and rural planning, road construction, and public works. In essence, then, the German cadastres are "multipurpose" in a distinct sense.

The heart of these German cadastres--and North Rhine-Westphalia and Lower Saxony are considered shortly--is the maintenance of a land register for all properties that accurately describes these properties along with ownership rights that attach to them. The register contains all properties in the jurisdiction, as defined by a land survey based upon a nationally uniform plane coordinate system. Secondly, the register or cadastre contains: (a) measurement information (copies of original field records often preserved for more convenient use in the form of "cadastral field sheets"); (b) maps; and (c) indexes (parcel registers, cadastral index, owners lists, card index of names). It is the legal obligation of property owners to provide all information required by the cadastre.<sup>4/</sup>

Although the responsibility for cadastral maintenance lies with the separate federal states, the base is a national geodetic network and there is a formal allocation of function following the federal governmental system. This is tripartite, headed by the federal Ministry of Internal Affairs whose responsibilities include: general guidance

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<sup>3/</sup> The explicit constitutional character of the federal system of Germany is complex in terms of the distribution of powers and responsibilities. Local self-government is recognized through the Gemeinde (18,336 municipalities, parishes, communes, urban districts), some of which belong to the counties (Kreise) and some which do not. These local units generally are subordinate to the Länder, but they also discharge some federal functions.

<sup>4/</sup> Information is provided by both the cadastral survey administration (governmental) that can be retained by property owners or private surveyors who are publicly licensed and have the legal status of public agencies.



(including legislative and administrative supervision), fundamental operations of surveying and cartography, matters concerning federal and state boundaries, organization and personnel, including pay and emolument, and budgeting and accounting.

At the state level, there are some variations in function, but, on the whole, the "state survey offices" provide for the administration and technical operation of the state cadastres (including land valuation) and the required functions of national surveying that are appropriately undertaken here, as against the national or district level.

On the "district" level, the emphasis is upon types of surveying, maintaining cadastral map series and lists, a concordance of cadastral information, and cooperating in land use planning and the valuation of properties. While much of the latter is carried forth on the state level, municipalities frequently are involved in the planning and statistical compilations.

All these cadastral-based agencies work closely with analogous administrative bodies (i.e., land consolidation authorities, road construction authorities, forestry and marine surveying, the federal railway, and the armed forces).

To make the above-described system function administratively, it is clearly necessary to provide "horizontal" as well as "vertical" coordination. This is done by the "Working Committee of the State Survey Offices of the Federal Republic of Germany," whose membership includes all of the federal states and West Berlin. Subunits of this committee, called "Working Circles," deal with specific, generally technical, matters affecting the cadastral system.

#### North Rhine-Westphalia

The core of the German cadastre is juridical, based upon the uniform national survey incorporated in the land registry. The cadastral map series provides the following information: state and administrative boundaries; property and its boundaries (boundary marks and parcel numbers); place names; use; improvements; topographical objects; and other technical declarations.

In North Rhine-Westphalia, this land registry must provide legally acceptable descriptions of property and improvements for both administrative and economic purposes. It is also the legal base for issues relating to estates (probate) and for the processes of property assessment.

Beyond the land registry is a data bank, in part automated, relating to every parcel in the jurisdiction and including information that is administrative, juridical, and economic. It is designed for ease of updating and immediate retrieval and is tied into comparable data compilation and communication systems.

This data bank is comprised of data files with the following designations: "real estate"; "plan"; "land register"; and "building." In essence, this multiuse system is built upon the basic data of the land registry (i.e., parcel number, technical survey information, place name, use, square measure of parcel, disputed boundary, and the parcel's coordinates). Beyond this, the cadastre of North Rhine-Westphalia embraces many elements of the fiscal, juridical, and environmental cadastres: legal classification of parcels; nature and quality of soils; nature of proprietorship; and street and house numbers. Indeed, these "data files," taken as a whole, provide for complete documentation on each piece of property, an updating of such information on a constant basis, usable location index documentation on all properties in a comprehensive, single projection, foundation reference for topographical and real estate-related data for other administrative purposes, and a foundation for an official cartography.

The multipurpose nature of this cadastre is held to be its prime merit by German commentators. They cite its usefulness in the administration of justice, particularly regarding the increased equity and efficiency in land valuation and assessment. However, the major motif is the contribution to planning, the environmental ramifications of the cadastre (a category no doubt stimulated by highly restricted living space), agricultural utilization, and urban renewal. The criticisms of the system acknowledged by German publicists are almost invariably connected with operational problems (redundant data collection, costly and tardy updating procedures, discrepancies, deficient sorting techniques) and these, it is believed, are amenable to increased technological efficiency.

Proposals for the future are ambitious, further expanding the cadastre to include separate coordinated data systems covering building construction, enhanced financial information, residential data, public lands, and population statistics. All of these further reservoirs of information are advocated for use in land planning efforts.

### Lower Saxony

Here, too, there is a comprehensive cadastre (on the national grid) with a hierarchical parcel numbering system based upon municipality-district-parcel. The land registry discloses size, ownership (of all types), residence, citizenship, owner's address and total national holdings, and street numbers of parcels. It is increasingly automated. Other data files generally follow the practice in the other federal states. The state cadastre is administered by the "Provincial Administration Office" (with district cadastral offices).

Lower Saxony is associated (in terms of the land registry, property register and cadastral maps), with a consortium of other federal states through working groups of the "Working Committee of the State Survey Offices." Joint automation is the principal goal, with plans scheduled for completion in the 1980-82 time-frame. The West Germans have completed, as of this writing, the conceptual development of a fully computerized parcel register (Liegenschaftskataster) and title register



(Grundbuch) in close cooperation with surveying, legal, and administrative authorities and have embarked on the project's implementation.<sup>5/</sup>

### Sweden

Sweden is a unitary constitutional monarchy, notable for a general policy of neutrality, although it is active in commercial and cultural channels. Internally, Sweden in the 20th century has revealed an impetus toward advanced social legislation and experimentation, in general under Social Democratic guidance. Sweden has a total land area of 173,423 square miles.

The central purpose for the recent adoption of a national cadastre in Sweden, supported by an elaborate commitment to electronic data-processing, is urban and regional planning.<sup>6/</sup>

The present system has resulted from three major activities that are being carried forth as a part of Sweden's land data research and development efforts. These involve: (1) the property registration subsystem; (2) the land registration subsystem; and (3) the Land Data Bank System I (see fig. 9-1). The property subsystem is comparable to the fiscal and environmental cadastre since it contains data concerning property taxation and planning. The land subsystem is equivalent to a juridical cadastre, containing information concerning land titles and ownership. Both subsystems employ the ownership parcel as the basic data unit.<sup>7/</sup>

In 1964, a Property Register Committee was formed. In 1968, this committee proposed a uniform system of registration, recommending the utilization of electronic data-processing techniques. Collaterally, in 1963, the Central Board for Real Estate Data had been created and began to undertake computerized development of property registration. In 1971, both property registers and land registers were combined. This unified and essentially uniform system, called Land Data Bank System I, was inaugurated in Uppsala County and is being extended into two additional counties (including the Stockholm area). When the full extension of this system is completed in 1982, approximately 1 million of the 3.5 million Swedish property units will be administered by this cadastre.

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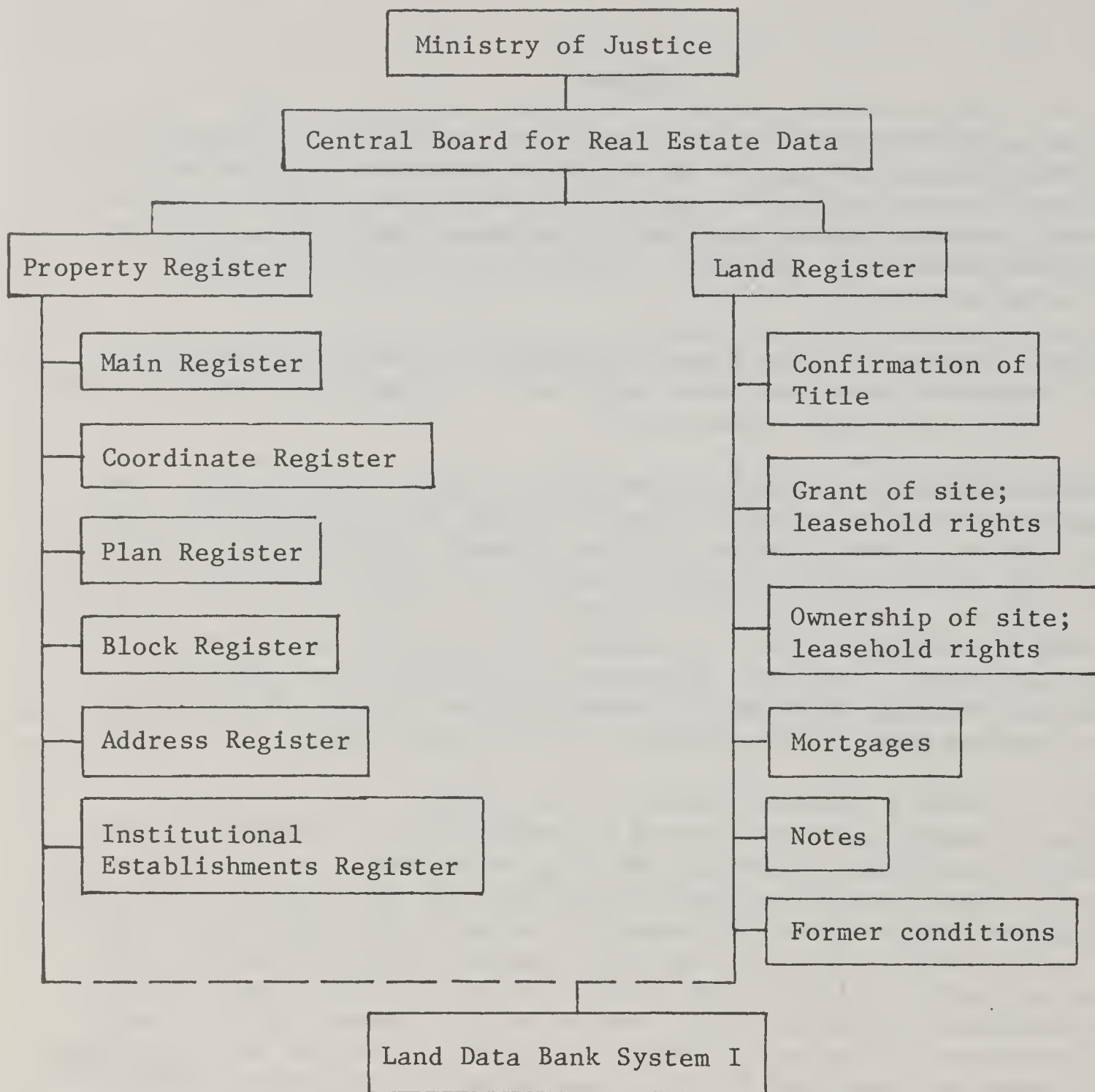
<sup>5/</sup> Additional information on the land registry system in Germany can be found in Klaus Barwinski, "Modern Cadastre in a Highly Developed Country," in Proceedings of the North American Conference on Modernization of Land Data Systems, Washington, D.C., 1975, pp. 341-366.

<sup>6/</sup> Much of the discussion of the Swedish cadastre is based upon Bengt Rystedt's "The Swedish Land Data Bank--a Multipurpose Information System," in Wastesson, Rystedt, and Taylor (eds.), Computer Cartography in Sweden, Monograph 20, Supplement 2, Canadian Cartographer, Vol. 17, 1977, pp. 19-48.

<sup>7/</sup> D. David Moyer, An Economic Analysis of the Land Title Record System, Ph.D. Dissertation, University of Wisconsin-Madison, 1977, pp. 130-134.



FIGURE 9-1--SCHEMATIC: SWEDISH LAND RECORD SYSTEM



Source: Proceedings of the North American Conference on the Modernization of Land Data Systems, 1975, pp. 151-176.

In sum, the projected system is a multipurpose cadastre in which both land and property registers are "interfaced" under the Central Board for Real Estate Data. It includes a complete new national system of parcel location identification (by coordinates from a national survey grid), in addition to a considerably modified, more traditional hierarchical parcel identification system.

Since 1969, the Central Board for Real Estate Data has undertaken the development of a new system of land registration consisting of a real estate or property register and a land register (as earlier discussed). Both of these registers are subdivided into various subregisters. (See fig. 9-1.)

The Property Register is subdivided into components as follows: Main Register; Coordinate Register; Plan Register; Block Register; Address Register; and Institutional Establishments Register.

The Main Register contains the following kinds of information: properties (individually and jointly owned), including identification information (legal, administrative, historical); size and location (based on map references); and rights and restrictions. Taxation data are maintained outside the Main Register. Population data in Sweden are based upon domicile and thus become a feature of the cadastre.

The Coordinate Register is an inventory of parcels compiled by geocoding (i.e., using the parcel centroid to identify each parcel).

The Plan Register is based upon planning or regulatory categories (i.e., building and land use plans, laws governing land use, and special cost surveys).

The Block Register is arranged by housing blocks within planned areas. It includes information on planning and regulation related to these preplanned blocks.

The Address Register is comprised of addresses of properties and sites (city, street name, and number).

The Institutional Establishments Register records the designations, administrative and jurisdictional status, and purposes of public institutions such as roads and playgrounds.

The Property Register serves many purposes. For instance, its data base forms a basis for the confirmation of titles, mortgages, and other arrangements carried out through the land register. The physical integration of the property and land registers will reduce by half the storage of data. The integrated system also simplifies the work of register personnel who have direct access to current, more accurate information for each case they process.

The Land Register (interfaced with the Property Register by electronic data processing) is, in essence, a juridical cadastre dealing with the transfer and legal status of properties, including confirmation of title,



leasehold rights, mortgages, notes, former conditions, and most recent registration with respect to all legal and administrative decisions and annotations.

The main object of the Swedish cadastre is to make real property administrative data handling more effective. However, the Land Data Bank System I is also designed to play an important part in planning and related activities on all levels--central, regional, and local. The purpose of the data bank is to facilitate physical planning, rural and urban, but also to include such areas as regional traffic and communications planning, housing, schools, and medical care. The "coordinate system" is employed as a means of developing "functional" administrative and environmental areas to replace traditional forms of demographic organization (e.g., counties and municipalities).<sup>8/</sup> The coordinate system is being experimented with by other Swedish governmental agencies (e.g., National Road Administration and the Ministry of Labor). Possible extensions of the present cadastre include surveys of building stock, housing development, real estate formation, landownership conditions, and population distribution, even the "automatic delineation" of "densely built-up and densely populated areas."<sup>9/</sup> Further modifications in taxation administration are foreseen on the basis of the EDP-augmented cadastre.

The Swedish experience is of recent date, and the cadastre is not fully operational at this time. In one sense, the land data bank represents a substantial departure from the traditional practices in Sweden (ancient forms of parcel descriptions and land registration as a function of the lower courts of the judiciary). On the other hand, the development of the national cadastre with its core motivation of comprehensive planning is quite in keeping with the general social and governmental development of the country. There are features of the Swedish cadastre that might seem alien to American custom. The existence, for example, of "civil registration numbers" for all Swedish citizens (which will soon be tied into the national land data system) might strike some Americans as being intolerable if not expressly sinister in import. However, such a comprehensive cadastre and its uses do not appear extravagant within the Swedish national socioeconomic fabric.

#### Canada

Canada is a federal state comprised of 10 provinces and 2 territories and is legally a constitutional monarchy (created by the British North America Act of 1867). Although spoken of as a "confederation," Canada is, in fact, a tighter federal system constitutionally than is the United States. Canada's regional autonomy is an issue that has coursed through its affairs due to both geographic isolation and ethnic diversity, its most striking recent instance being the current agitation in Quebec for separation as a sovereign state. Canada has a total land area of 3,484,597 square miles of territory.

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<sup>8/</sup> Op. cit., Rystedt, pp. 19-48.

<sup>9/</sup> Op. cit., Rystedt.



## The Maritime Provinces

The most interesting and instructive of Canada's varying approaches to land data systems is constituted by the efforts of the Canadian Maritime Provinces (New Brunswick, Nova Scotia, and Prince Edward Island).<sup>10/</sup> In 1968, the "Atlantic Development Board" (instituted by the federal government to encourage economic development in the Atlantic provinces), undertook a 2-year study of surveying and mapping to be promulgated by the Maritime Provinces and Newfoundland. Another 2-year extension was made in 1970 by the federal Department of Regional Economic Expansion. The result of this undertaking was considerable cooperative effort in the area of program funding and management, while the provinces continued to retain sharp differences in technical standards and procedures.

The three Maritime governments had authorized, in 1965, however, a study to consider possible integration of general governmental functions, even the formation of a single political entity. This latter step finally was proposed in 1971, but rejected, substituting, instead, a Council of Maritime Premiers. Among matters of interest to this Council was land tenure and use. In 1972, the study of the survey and mapping program, commenced in 1968, again was extended, leading to a far more ambitious 4-year enterprise dealing with surveying, mapping, land registration, and the consolidation of land data, mounted by the provinces themselves. Out of this effort came, in 1973, the Land Registration and Information Service (LRIS), heavily subsidized by the federal government in Ottawa.<sup>11/</sup>

The primary objective of LRIS is to improve significantly an inefficient mapping, surveying, and land registration system. The LRIS involves four phases, of which major progress has been made in three phases up to the present time. The phases are:

1. Establishment of survey monuments totaling about 35,000, with monumentation density depending on population density. Each monument is defined by X, Y, and Z coordinates in a uniform grid system. This phase also includes a regular program of maintenance to replace destroyed and damaged monuments.
2. Production of three types of maps--resource, urban, and property--at appropriate scales.
3. Upgrading of the land registration system in several steps, eventually resulting in a modified Torrens title system (i.e., a complete juridical cadastre).
4. Establishment of a computerized land data bank for all land-related data.

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<sup>10/</sup> These provinces have a total land areas of 52,000 square miles and a population of 1,500,000 people.

<sup>11/</sup> Total expenditures to date have been reported to be approximately \$33 million, three-fourths of which has been contributed by the federal government.

The administrative structure for the LRIS includes a single "Directorate" for the three provinces and a "Division" in each of them. The "Divisions" are each responsible for a specified area of concern (i.e., surveys and mapping in Prince Edward Island, systems and planning in New Brunswick, and land titles in Nova Scotia).

The circumstances in the Maritime Provinces that preceded development of the LRIS are worthy of note. Titles to all privately owned land were initially derived from Crown grants. This eventuality led to a land identification system based on owner's names rather than property identification, due to the imprecision, initially, of surveying techniques and the character of the Crown grants. By the 1960's, the grantor-grantee approach was increasingly criticized and in response to this, a modified Torrens land title system was introduced and incorporated into the LRIS program.

The grid underlying the Maritime cadastre is based upon a national survey. LRIS established a secondary control network in the Maritimes, tied into the national system, based upon some 200 geodetic monuments referenced to the North American datum, with 35,000 "densification" monuments added for necessary precision. The mapping system that followed featured an integrated coordinate system, a usable projection system, an integrated indexing system, and common standards of accuracy and content. When property boundaries were overlaid, property maps were created and subsequent land parcels were sequentially numbered, using both coordinates of the parcel's boundaries and the traditional "metes and bounds" designations.

The land data registration system ultimately to be instituted after a transitional period is based upon both on-line and off-line computerized data storage that provides indisputable locational boundaries employing the new coordinate system (itself based upon a densified monumental system). Legal guarantees of title would be expedited, with traditional deeds replaced by ownership records and indexed by unique parcel numbers. Mortgages, loans, liens, and other information also would be indexed. Features of this cadastre would be: title guarantees and accuracy of parcel description; identification of land parcels by a nine-digit index number (rather than by seller and purchaser); elimination of "metes and bounds" designations; completely computerized data bank; and compulsory registration of legal documents affecting landownership.

Such a final development of the cadastre rests on legislative action and its fate, politically determined, is not clear at this writing. The three provinces have enacted compulsory registration laws, however.

The Land Data Bank phase is yet to be implemented. At present, environmental data are received from the "Canadian Land Inventory," which supplies data on natural resources, land use, and even wildlife statistics. Other information comes from the Census Division and from assessment records and public utilities data. In concept, the Land Data Bank will be a multipurpose data source dependent on subsystems similar to the Swedish model. In the proposed system under LRIS, the land parcel would remain the central configuration, augmented by detailed extensions of data into geographic, legal, demographic, and sociological information



systems consciously resembling the European cadastres, especially that of Sweden. Projected extended uses of this cadastre include industrial site selection, power line locations, highway corridor exploitation, watershed evaluation, recreational planning, and environmental impact studies.

The LRIS system is a multifaceted service institution that has already served both a wide range of uses (i.e., economic development, social services, natural resources, community planning, environmental planning, public utilities use, property tax assessment, and land titles) and an equally broad spectrum of specific institutional users (i.e., federal, provincial, and municipal governments, the Council of Maritime Premiers, and private industry).

The LRIS program has been analyzed in terms of a benefit-cost structure in two separate studies. Professor Hans K. Larsen, the author of one of these studies, suggests that "the system's development and operation costs exceed anticipation."<sup>12/</sup> Larsen indicates that these cost overruns were due to (1) additions to the program, (2) heavy inflationary pressures, and (3) failure to use a strict cost control system and formal operations research methodology. He also notes that certain savings potentials anticipated have not yet been realized. Because of the failure to carefully control project costs (i.e., adhere to the schedule set out initially), and a federal austerity program, the future federal subsidization of LRIS is uncertain.

The Canadian experiment is in transition, virtually in midpassage from what can be fairly described as an archaic land data system halfway to a full-blown, European-style cadastre. At present, it is essentially a dual system, combining cadastral and traditional elements, its juridical cadastre still a modified Torrens land title system, its multiuse feature only being tentatively employed. Some benefits appear to have been realized. Survey costs have been generally reduced; mapping is improved and less costly. There has been a significant reduction in land disputes, and title searches and transfers are far more efficient and less expensive. There are considerable potential advantages in assessment efficiency. In more general terms, uniformity and accuracy are enhanced, as well as ownership protection. Also, other governmental agencies and public utilities (e.g., Departments of Lands, Forests, Natural Resources, and Highways, and phone, gasoline, and power companies) report increased efficiency and lowered costs due to the easier access to appropriate data. To what extent, however, these benefits are offset by increased governmental subsidization is not clear.

#### Taiwan

In 1948, after the expulsion of the Nationalists from the Chinese mainland, the Republic of China became, in essence, the government of

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<sup>12/</sup> Hans K. Larsen, Preliminary Report on Canadian Provinces LRIS and Non-Resident Ownership Monitoring, Foreign Investment in Real Estate Study, Lincoln Institute of Land Policy, Cambridge, Mass., 1979.



the island of Taiwan, together with the Pescadores Islands, forming a territory of some 13,886 square miles. This area had been administered previously by the Japanese as Formosa, the island having been ceded to Japan by China in 1895. It can be fairly surmised that the cadastre now in use on Taiwan, under the government of the Republic of China, owes its nature, in part, to the existing arrangements introduced by the Japanese during their 50-year sovereignty over the island.

The juridical cadastre utilized currently by the government of the Republic of China is based upon a land survey made in 1977. The resulting cadastre, administered by the Land Bureau of the Taiwan Provincial Government, divided the national territory into regions and subregions. These administrative districts were further broken down into local jurisdictions and, finally, into discrete land parcels designated by serial number and classified as to the category, grade, and particulars of the land involved.

Cadastral maps, based upon the national survey, are maintained by municipal or county land offices. These offices also undertake the resurveying of lands when changing conditions or arrangements require.

The fiscal cadastre is based upon the parcel serial number or "identifier," as above, interfaced with the national land survey. A land registration book is maintained by the local offices mentioned earlier. These offices have the obligation to transfer pertinent data to the tax office. The range of information retained regarding the parcel is extremely extensive, including citizenship and land use.<sup>13/</sup>

The land registration system of the Republic of China on Taiwan adopts elements from both the German registration system (possibly via Japanese practice) and the Australian Torrens system. It is based upon a compulsory registration system in which virtually all aspects of land transaction and use become incorporated within the cadastre and in which the administering agency is directed by legal statute to perform those functions appropriate to the transfer and registration of real property. The municipal or county land office will, therefore, maintain a very formidable array of informational depositories: land registry; constructional improvements register; and books recording the resurveying of land and improvements, along with maps on the foregoing. Not only is this cadastre the sole and complete legal mechanism for the utilization of land, but it also is a highly routinized means for the extensive regulation of land use.

The environmental cadastre also is extensive. Besides parcel identifiers, all lands on Taiwan are divided into urban and nonurban classes.

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<sup>13/</sup> It is interesting to note that alien ownership is permitted on Taiwan, but only for noncitizens from countries that permit "Chinese" nationals to own land there. Many classifications of land are barred to foreign ownership: agricultural land; forest land; fisheries; pastures; hunting grounds; salt fields; lands with mineral deposits; sources of water; lands lying within fortified and military areas; and lands adjacent to national frontiers.

These categories are then being subdivided into "districts" that are tightly defined and regulated by statute. The details of this comprehensive land use law cannot be fully described here, but the scope and rigor of land use planning on Taiwan is very considerable. The role of government is decisive and the regulatory power great. Laws are designed to summarily prevent the fragmentation of landholdings, to prohibit land speculation, and to encourage agricultural efficiency by planning and management.

Given a relatively small land area provided by the island and in view of Taiwan's growing population and industrial development, it is not surprising that the Taiwanese cadastre is at once multifaceted and devoted to planning and regulation. Its instigation is prompted by a desire to promote and control land use and to exploit to the fullest measure possible the resources available. To these considerations may well be added Taiwan's peculiar and precarious political situation.

#### A COMPARATIVE SUMMARY

Table 9-2 indicates some of the similarities and differences that exist among the cadastral systems in the five countries surveyed, as follows:

- (1) As indicated in table 9-1, land areas vary widely, from nearly 3.5 million square miles in Canada to slightly less than 14,000 square miles in Taiwan. Similar variations also exist in population and population density.
- (2) All five models are modern industrial states and nominally parliamentary democracies. Three are federal states, and two are unitary states.
- (3) Four of the nations are civil law states and one is a common law state.
- (4) Four have strong traditions in public administration and, in general, all five are progressive in socioeconomic outlook.
- (5) Three of the models enjoy a fairly long continuity of cadastral-type arrangements (France, the Federal Republic of Germany, and Sweden), and two have undertakings of this variety of more recent date (Canadian Maritime Provinces and Taiwan).
- (6) Sweden, the Federal Republic of Germany, France, and Taiwan employ a unique hierarchical land parcel identification system, and Canada is doing so in part. Sweden also uses the parcel centroid for parcel identification.
- (7) All the models use some form of national grid for location purposes.
- (8) Three states (France, Sweden, and Taiwan) have national-based cadastres (primarily centrally administered) and two (the Federal Republic of Germany and the Canadian Maritimes) have provincial or regional cadastres.



(9) Sweden and Taiwan have a heavily multipurpose cadastre (concerned with ownership rights and planning). The Federal Republic of Germany has a multipurpose cadastre, with less planning orientation. France has a basically fiscal-type cadastre. The Canadian Maritime Provinces have a mixed system in transition toward a full multipurpose cadastre.

(10) All the cadastres are partly supported by electronic data-processing. Sweden, the Federal Republic of Germany, and the Canadian Maritime Provinces have plans to completely computerize their operations.

(11) Sweden, the Federal Republic of Germany, and the Canadian Maritime Provinces have or propose to have land data systems that embrace a full juridical cadastre (i.e., replacing existing systems of legal identification and data registration). Such a juridical cadastre is now complete on Taiwan. France's cadastre is augmented by existing legal registers.

(12) Sweden and Taiwan support a very broad concept of the environmental cadastre. The German, French, and Canadian land data banks, in varying degrees, contain far less environmental and demographic information.

The technical procedures employed by the cadastres in this study display a wide range. But, in general, it is possible to conclude that the technical and operational techniques used are largely selected and developed in terms of the primary objectives upon which the cadastres are predicated. These cadastral systems also are influenced by the more traditional practices of government and by the technical communities that participate in their maintenance.

In some instances, it is also apparent that the objectives of the cadastre system changed considerably over the time in which they evolved. Sweden and Taiwan are examples of this evolution of objectives. Initially, parcel description and tax assessment were the primary objectives. However, the use of cadastral data for planning (and regulation in terms of guiding development) has also become a major factor in these cadastres.

#### CONCLUSIONS AS TO APPLICABILITY TO THE UNITED STATES

It is apparent that in general, neither the European cadastres nor that of Taiwan are directly applicable to the United States as total systems. However, it does appear that many techniques and applications are applicable for serious consideration in the United States. Five factors affect the applicability of foreign cadastre experience to the American case:

- (1) Size and topographical diversity.
- (2) Governmental systems.
- (3) Socioeconomic climates.
- (4) Traditional patterns of land data compilation and registration.
- (5) Legal precepts relating to the prerogatives of landownership.



Table 9-2--Comparison of cadastral systems

Item	Country			
	Sweden	Federal Republic of Germany	France	Maritimes, Canada Taiwan
Governmental type	Monarchy	Republic	Republic	Monarchy Republic
Governmental system	Unitary/ parliamentary	Federal/ parliamentary	Unitary/ parliamentary	Federal/ parliamentary Unitary/ parliamentary
Cadastral base	National	National (juridical)	National	Regional compact (provincial) National
Superintending branch of government	Ministry of Justice	Ministry of Internal Affairs (geographical); Ministry of Justice (juridical)	Ministry of Finance	Responsible to Council of Maritime Premiers Unknown
Administering cadastre	Central Board for Real Estate Data	Surveying and Cadastre Admin. (Lower Saxony); State Survey Office (N. Rhine-West.)	Department of Finance	Land Registration and Information Service Provincial Land Bureau
National grid system	Yes	Yes	No	In part Yes

Table 9-2--Comparison of cadastral systems (Continued)

Item	Country			
	Sweden	Federal Republic of Germany	France	Maritimes, Canada Taiwan
Use of coordinates	Yes	Yes	No	Dual system Dual system
Use of fiscal cadastre	Yes	Yes	Yes	Yes Yes
<u>Information recorded:</u>				
Ownership	Yes	Yes	Yes	Yes Yes
Types of ownership	Yes	Yes	Yes	Yes Yes
Size	Yes	Yes	Yes	Yes Yes
Value	Yes	Yes	Yes (rental value/harvest expectancy)	Yes (market value) Yes
Residence of owner	Yes	Yes	Yes	Yes Yes

Table 9-2--Comparison of cadastral systems (Continued)

Item	Country				
	Sweden	Federal Republic of Germany	France	Maritimes, Canada	Taiwan
Citizenship requirements for land ownership	No (foreign purchase of land prohibited except by permission)	No	No	No (provincial restrictions on foreign ownership)	Yes (foreign ownership restricted)
Land use	Yes	Yes	Yes	Yes	Yes
Tax assessment	Yes	Yes	Yes	Yes	Yes
Use of juridical cadastre	Yes	Yes	Yes	Yes	Yes
Grantee-grantor	Preserved; not in EDP system	Kept in juridical cadastre	No (kept elsewhere)	Preserved; not in active files	Preserved
Transaction type	Yes	Kept in juridical cadastre	No (kept elsewhere)	Yes	Yes



Table 9-2--Comparison of cadastral systems (Continued)

Item	Country			
	Sweden	Federal Republic of Germany	France	Maritimes, Canada Taiwan
Sale price	Yes	Yes	Yes	Yes
Size	No	Yes	Yes	Yes
Water, air, and mineral rights	No	Partial (water rights, Lower Saxony)	No	Partial Yes
Easements, liens, covenants, etc.	Yes	Variable	Yes	Yes
Zoning	No (kept elsewhere)	No (kept elsewhere)	No	Yes
Date of recording	Yes	Yes	Yes	Yes
Type of documents	Yes	Yes	Yes	Yes

Table 9-2--Comparison of cadastral systems (Continued)

Item	Country			
	Sweden	Federal Republic of Germany	France	Maritimes, Canada Taiwan
Use of environmental cadastre	Full environmental information system	Various systems exist; basic data for assessment and urban mapping	Does not exist separately; some demographic data in other systems	Not separate; most data in fiscal cadastre Contained in general cadastre; comprehensive data

(1) It is not likely that European-type cadastres could be reproduced without significant modification for countries with land areas as extensive as the United States or Canada. This restriction is not a technical one, but rather arises from factors such as the variety of land types and utilization. This range of diversity, in turn, suggests a system designed to provide data collection and recording in a manner appropriate to conditions of specified character.

(2) The American federal system is in some respects unique, and the current structure of American governmental responsibility implies a greater measure of decentralization than is the case in continental Europe.

(3) American private enterprise has not been subjected to the degree of regulation characteristic of the countries surveyed. The three European countries represent differing cases, ranging from Sweden and Germany, essentially social democratic states, to France, whose national climate is less doctrinaire but still more acclimated to administrative regulation. The case of Taiwan presents a political situation remote from the American milieu. Even Canada is less imbued with the traditions of laissez faire capitalism. Currently accelerating resistance to forms of governmental regulation and bureaucratic prerogative in the United States, whether legitimate or ill-considered, limits the scope of any nationally conceived land data system of a type comparable to the European models.

(4) The United States has developed a number of approaches to the identification, description, and classification of land. Legal descriptions of property, for example, range from the metes-and-bounds system in the eastern United States to the Federal rectangular survey system that exists in 30 States. The present variation in the inventory of land data from State to State, even from county to county, is considerable. This lack of uniformity, together with the preeminence of the States in the area of property law, suggests that European-type systems, comprehensively homogeneous, are not directly applicable. However, the general similarity in land surveying procedures would suggest that relative uniformity can be attained among the States, based on Federal guidelines, but administered at the State level.

(5) None of the European countries studied rely on the common law as a basis for property ownership. (These common law precepts have been attuned to the concept of "individualism.") The development of cadastres in these common law countries has usually adopted either a preexisting form of land registration or a system that did not differ substantially from the one used in the past.<sup>14/</sup>

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<sup>14/</sup> It is well to recall, however, that Australia was the progenitor of the "Torrens" registration system. Moreover, in recent years, Australia has been much concerned with cadastral surveying and mapping, including governmental legislation for the establishment of state control surveys and the emplacement of a permanent monumentation system.



On the other hand, the European and Canadian models testify to the technical feasibility of extremely ambitious efforts at land data compilation and their successful implementation, at least within these countries' own self-conceived parameters. It can be argued, on one conceptual level, that the orderly collection of information of and by itself represents a positive good. An obvious parallel illustration would be a national census. In theory, the more data collected by such an undertaking the better, as such data can be transformed into information that constitutes a basis upon which informed judgment can rest. But this is, quite evidently, a facile oversimplification. There arises, inevitably, the issue of whether some forms of information are inherently of a nature whose possession by government either overtly conflicts with individual security (or "right to privacy") or is of a character whose possession and disclosure could be employed by unscrupulous or reckless persons to the detriment of individuals or the general good.

While this discussion is not intended to render normative judgments as to such issues as privacy and disclosure, these matters are pertinent to the discussion of the applicability of foreign land data systems to the United States. The heart of the problem is the balancing of society's welfare (i.e., to assemble a land data base) and the rights of individuals (to not disclose information about parcels in which they hold an interest). The foreign experience suggests that to resolve these issues, a compromise is necessary, based on the cultural values held by the society (of the nation). In the end, the decision must be made on a political basis.

Canada has an area larger than the United States and a population distribution that is quite concentrated. These factors help explain the lack of a comprehensive, all encompassing land policy for Canada. That is, with the exception of the Maritimes (a relatively small, uniform area), cadastre systems and other land policy matters are carried out by the provinces in an independent manner. Similar wide variations in topography and population density in the United States suggest that giving the States considerable independence (probably coupled with standards, guidelines, and technical assistance) would be an appropriate approach.

It might be noted that, although Canada and Germany are federal states, such federations differ from that of the United States in regard to the "reserved" powers constitutionally delegated to the States in the American Constitution. The Canadian and German federal systems do not embrace any cognitive doctrine of "divided sovereignty" that did shape, at least initially, the nature of American federalism. This difference clearly suggests considerable legal and constitutional problems regarding the feasibility of uniform, cadastral-oriented land inventories and registeries in the United States.

It also is noteworthy that in the two federal examples cited, Canada and Germany, cadastral systems appear to require forms of "cooperative federalism," especially in terms of funds. The development of the cadastre in the Maritime Provinces has rested, in large measure, upon the largesse of the federal government and may require such support for its future maintenance. In Germany, it is the central governmental

ministry that retains fiscal supervision. Beyond the question of support, federal systems imply the need for some form of administrative liaison among the states themselves, either in terms of a hierarchical organization like Canada's LRIS with its central Directorate or Germany's "Committee of the State Survey Offices" that may be, in some respects, more flexible. In the United States, the interstate highway system is a comparable undertaking, both in terms of federal cost-sharing and administrative liaison through state and county government. In some instances, there may be congenial groups of political entities (like the Maritime Provinces) drawn into what are, in principle, regional compacts based upon common features of topography and demographic requirements. It is difficult to see such regional compacts (beyond the existing arrangements) except, perhaps in the "prairie" provinces of Alberta, Saskatchewan, and Manitoba. British Columbia, Ontario, and Quebec are very separate entities. Yet a unitary, comprehensive national cadastre such as Sweden's seems geographically, legally, and politically unlikely in Canada. The network MPLDS outlined in chapter 7, with heavy reliance on local and state government, appears to be a good compromise based on experience in foreign countries.

The criteria of both adequacy and feasibility turn, if the models are in any way informative, upon the clarity of conception on which land data systems initially rest and the degree to which a conceptual framework has been rigorously developed. The Canadian experience discloses certain fragilities in that conceptual rigor in which an initial urge to reform a cumbersome and perhaps obsolete system gave rise to a multipurpose goal. Flexibility is a merit, but it may well be that cadastres conceived to incorporate a host of services may prove to be awkward and inefficient in implementation. Put another way: cadastral development likely may involve socioeconomic compromises, but these compromises ought not to feature crucial procedural concessions lest the system become a patchwork of the old and new whose marriage of convenience is more random than logical.

It is doubtful that systems as elaborate and costly as cadastres ought to be brought into being for what might be called "secondary" or "marginal" aims or benefits. Historical reflection would suggest that the aims of cadastres must initially be as broad-based as tax assessment reform, land title registration, national land planning, or the comprehensive reconstruction of large-scale land inventories, in contrast to such more limited motivations as environmental impact considerations, disclosures of ownership, or even narrow use studies. A distinction must be made between systems of information storage and retrieval, however facilitated by electronic means, and a cadastre that is in a true sense a coherent, multidisciplinary and multiuse conceptual system. A variety of land data systems conceivably can be made more efficient by technological refinements (and many even very small agencies involved with the maintenance of land data, such as county assessors and registrars of deeds, employ some forms of electronically assisted methods). The cadastre, in its contemporary manifestation, is essentially an organic system and consideration of its potential usefulness and suitability are best made in the light of that premise.



Cadastrals are shaped by the purpose for which they are intended. Centralized land planning, as in Taiwan, Sweden or Germany, calls for more elaborate and comprehensive cadastrals. In some countries such as Taiwan, the intent to control land may override other purposes. Other countries such as Canada may modify their land control purposes with other objectives such as ease of conveyancing in the private market. The competing goals of regulation and commerce may affect the design of the cadastre. In the Canadian Land Registration and Information System in the Maritimes, the reform of land registration and transfer procedures attempts to improve normal commerce. Improvements in commerce create some frictions with programs of planning and regulations. The hostility of these objectives appears in the diverse viewpoints of some categories of professionals: (a) land use specialists (cartographers, surveyors, planners) and (b) real estate and law.

Under present conditions, the cadastrals of Europe are currently inappropriate for the United States. However, there is need for substantial reforms of data systems to facilitate commerce, to improve tax assessment and to perform regulatory and planning functions.

Such reforms presently are on-going in many parts of the United States. Most arise from decentralized initiatives (e.g., at the county level) or even within the office handling a specific function (e.g., title recording or assessment). There is a felt need on the part of several Federal agencies for a more uniform approach to cadastre system development. Because of the present status of United States land records and the nature of our governmental system, a system that is highly uniform throughout the country is not likely. The better approach would seem to be a cooperative one, in which the local and state systems are developed, with the help of cost-sharing, standards, guidelines, and technical assistance. The resulting system should have sufficient uniformity to serve regional and state needs, and also allow for sufficient diversity to serve the needs of local and state governments, who will always be the major user of cadastre systems in the United States.

Finally, land data reform in the United States should be local in instigations and gradual in adoption, designed to meet the specific needs of regulation and commerce.





## Chapter 10

### TECHNICAL, ECONOMIC AND ADMINISTRATIVE FEASIBILITY OF MULTIPLE-PURPOSE LAND DATA SYSTEMS

Geoffrey Dutton, John Behrens and Joseph Post\*

#### INTRODUCTION

The absence of a coordinated data base is characteristic of land-related data in general in the United States.<sup>1/</sup> The reason for this general deficiency seems to be that land-related functions (such as assessment, zoning, and title clearance) historically have been matters of local or State concern in the United States, so that land data collection and storage generally have been handled on the local and State levels. The systems which have evolved tend to be inadequate or inefficient even for local needs,<sup>2/</sup> and next to useless for such Federal needs as foreign investment monitoring.<sup>3/</sup>

This inadequacy of local data systems for many Federal needs has at least two components. First, as with foreign landownership data, the information simply may not be collected at the local level.<sup>4/</sup> Thus, most States do not require alien land grantees to identify themselves as such when they record their deeds. (Requirements that grantees give their address or place of business are not of much help, given the multitude of available

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<sup>1/</sup> "Since [1972] there have been scores of public decisions about how the land should be used, but not one survey of United States land ownership patterns." P. Meyers, "Land Rush: A Survey of America's Land," Harper's, January 1979, pp. 45, 48.

<sup>2/</sup> See Land Parcel Identifiers for Information Systems 12 (D. Moyer and K. Fisher, 1973), discussing inadequacy of local land title records for conveyancing purposes.

<sup>3/</sup> See General Accounting Office, Foreign Ownership of U.S. Farmland--Much Concern, Little Data 6 (GAO Rep. No. CED-78-132, June 1978): "[G]enerally, county public records are not a useful source of information on foreign investment in county farmland."

<sup>4/</sup> Ibid.

legal devices which allow "actual" grantees to conceal their identity<sup>5/</sup> through the use of "front" organizations.) This, by itself, would not be an insuperable problem. After all, if the Federal Government is interested in a particular sort of data, it could always collect the data itself, as it does under the AFIDA program.<sup>6/</sup> Little waste would be involved, since the information is not, in most States, redundantly collected by local or State governments. However, many such Federal programs would depend to some extent on local records (and thus be limited by local system inadequacies) in at least two ways. First, systems for collecting land parcel data tend to collapse of their own weight, unless each data item collected is annotated with a number uniquely identifying the parcel to which it pertains. A unique identification system allows records and reports pertaining to the same parcel to be correlated with each other and prevents double counting. Such parcel identifiers should be tied to local maps and records. Second, there may be a Federal interest in correlating federally collected foreign investment data with other land-related data collected for the same parcels by local governments. Unique parcel identification also would be necessary for the coordination of these data.

Currently existing systems of local land data collection and storage generally would not facilitate special Federal land data collection programs in the two ways described above. This is because of the second component of local land data system inadequacy--the relevant data records tend to be uncoordinated and poorly organized. Moyer, for example, notes that in Wisconsin documents relevant to the validity of the title to a parcel are stored in at least five county offices,<sup>7/</sup> and doubtless several more offices exist in most counties storing various forms of nonownership, land-related data. Furthermore, the data stored in these various offices generally will not be "tied together" through the use of consistent indexes. Finally, the most important data items collected for ownership-related purposes--recorded deeds, generally are indexed not by parcel but by an antiquated system of grantor or grantee indexing.<sup>8/</sup>

In short, whether the relevant data are collected at the local or Federal level, some degree of systematization of local records will be necessary--or at least highly desirable--to support the maintenance and analysis of the data collected. What is required is the establishment of local "multipurpose land data systems" (MPLDS).

It should be noted that one of the two multipurpose approaches discussed in this chapter, a locally maintained MPLDS network, is not a unitary national

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<sup>5/</sup> See Burke's discussion of ownership information in chapter 16, particularly as it applies to the nominal-beneficial ownership question.

<sup>6/</sup> 7 U.S.C.A. §§ 3501 et seq.

<sup>7/</sup> D. Moyer, County Cadastres and Compatible Parcel Identifiers: Needs and Costs in Land Parcel Identifiers for Information Systems I-33, I-56 (D. Moyer and K. Fisher, 1973).

<sup>8/</sup> See D. Moyer, Land Title Records and Recording Procedures in the United States 41 (USDA Internal Report, August, 1974). But some counties also use tract indices. Id. at 42. And local land title data frequently are organized in more useful form in so-called title plants maintained by title insurance companies. Id. at 55, 56.

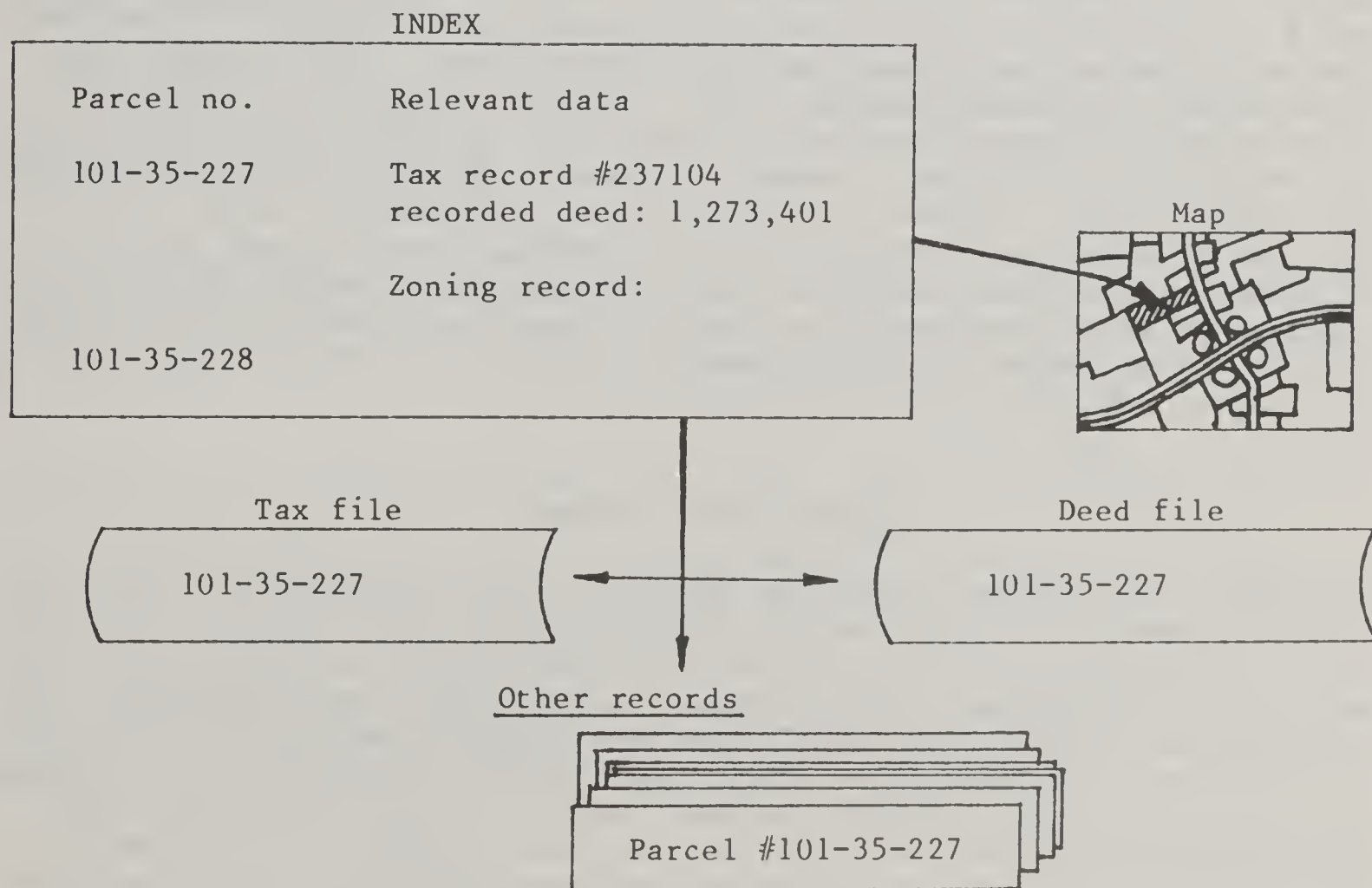


land data bank. The difficulties involved in developing a consistent nationwide system of parcel identifiers, of mapping and assigning identifiers to all the parcels in the Nation, and of assembling all land-related data currently stored by county, Federal, State, and city governments are so formidable that a local network seems to be the only reasonable approach to an intelligence data-gathering strategy.

Of course, the establishment of a "full-blown" MPLDS in all counties--along the lines of systems such as are now operating in Fairfax County, Va.,<sup>9/</sup> and Lane County, Oreg.<sup>10/</sup>--is not necessary. All that is required is what might be described as the essential core of an MPLDS--i.e., a system for parcel identification and indexing, combined with a requirement that all land-related data collected in a minimum data set be annotated with the relevant parcel number. A schematic of such a system is shown in figure 10-1. Such a system, simple as it seems, ultimately is very powerful:

- \* It prevents the corpus of data collected from becoming unwieldy and unmanageable.
- \* It allows comparative analysis (for example) of foreign investment data with any other data entered into the system subsequently or previously.
- \* It provides a framework for subsequent expansion of the system.

Figure 10-1



<sup>9/</sup> See J. Hysom, A Handbook for Generating an Urban Development Information System (NTIS Rep. No. PB-238-815, November 1974).

<sup>10/</sup> See Mahan, Spivac, and Swank, "Plotting Land Use in Oregon," Data-mation, November 1, 1978, p. 155.

Furthermore, the establishment of such a system at the local level would greatly facilitate data analysis desired by State or local governments, by enabling data of one sort collected on a parcel-by-parcel basis to be correlated with data of any other sort which might be available for the same parcels. It also would contribute to purely Federal data collection efforts such as AFIDA. A requirement that all land-data-related forms submitted to the Federal Government be annotated with the local parcel identifier would: (1) make the data base easier to administer (as described above) and (2) allow the Federal Government to easily obtain any locally collected data of interest for particular parcels identified during the data collection effort. This approach would be used only for systems that were constructed to provide intelligence-type data output, as described in chapter 7.

The systems can, of course, go far beyond this "starting point" of parcel identification and indexing. New feasibility questions are raised as MPLDS's expand via, e.g., the addition of new data, automation of the system, creation and digitization of maps, etc. In this chapter, two sets of feasibility issues are discussed separately: (1) those involved in setting up a minimal MPLDS (as described above), and (2) those involved in setting up a more extensive "generalized" MPLDS.

#### CURRENT SYSTEM INADEQUACIES

Current U.S. land record systems are discussed at some length in chapters 7 and 8. In particular, the structure and operation of record systems used for the title and assessment functions are reviewed. This chapter takes these discussions a step further. For instance, some of the costs and shortcomings of present systems are noted, for purposes of comparison with the two MPLDS alternatives (network and survey systems, Scenarios III and IV, respectively). Current system costs are particularly useful in relation to the estimated costs of a network MPLDS. Technical and administrative feasibility of Scenarios III and IV depend to a considerable degree on current procedures and practices that are used by the assessing and title offices, since these current systems will provide the base on which either of the proposed models would be constructed.

#### Title Record Systems

The state of knowledge concerning ownership, use, and abuse of land in the United States can be charitably described as chaotic. Although this situation is compounded daily by the growth of public and private organizations which survey, photograph, map, inventory, and assess land without any real coordination, the roots of this chaos can be traced back to the fact that, with few important exceptions, publicly archived information about transfers of ownership of real property has been, and is, held in isolation from inventories describing the value, use, or other status of the property. This is principally the result of the way land transactions are conducted and recorded. Nearly all the clerical difficulties which beset the analysis of land-related data stem from this fact.



Appendix A discusses several studies regarding land transfer and title recording processes used in the United States. It notes, for instance, that while land title recording is controlled by a separate statute in each State, these State systems generally are quite uniform across the country. Also, because only evidence of ownership is recorded, rather than registration of the ownership itself, the title record system continues to grow (in terms of documents stored), with each new document recorded adding to the total archival record of landownership interests.

Exhibit 10A-1 notes that, while the State recording systems are relatively uniform, there is wide variability in the information content of recorded documents. For example, only 27 percent of the jurisdictions always include a parcel number on each recorded document, 18 percent include such numbers on part of the documents, and 55 percent never include parcel numbers on recorded documents. This variation means that substantive changes in recording procedures are necessary if the land title system is to be used to maintain an inventory of selected data items (e.g., parcels owned by foreigners).

Appendix A also contains information on the costs of land transfer in the United States. The data presented suggest that 5 to 8 million parcels are transferred each year, with transfer costs in 1972 totaling over \$7 billion. Many transfer costs are attributable to the handling of information. Therefore, improvements, such as those proposed as part of the network MPLDS, should help reduce or at least slow the rapid increases in these property transfer costs.

In particular, improved record-handling techniques, as proposed in Scenario III, should provide direct benefits to the recording offices. The direct expenses of recording offices in 1969, paid by fees and property taxes, totaled nearly \$148 million.

Costs to local and State governments for valuation of property for tax purposes also should be reduced by a network MPLDS. Since taxable parcels numbered 88 million in 1976, the savings of even small amounts per parcel in assessing property would result in substantial cost savings.

Cost savings also should accrue to institutions in the private sectors that are involved with the land transfer process. The title insurance industry, which has developed and grown due to shortcomings of the public title record system, is a case in point. Improvements such as standard parcel identifiers and uniform indexing systems should help reduce title company costs. Ultimately, if a network MPLDS is fully implemented, private title plants (i.e., a private compilation of public records) would not be necessary. That is, title insurers could have access to public records in urban counties via computer terminals. The savings possible due to reduction in duplicate record systems are both obvious and substantial.

#### Nontitle Record Systems

The integration of land transfer records with land status records via a system of standardized parcel identifiers would by itself be a major accomplishment in many localities. There are, nevertheless, many types of



land records kept by Federal, State, and local agencies, and also by utilities, mining companies, and other industries which are not strictly parcel-based and thus not directly affected by improvements or lack of them in parcel indexing and mapping. Nevertheless, all land records describe characteristics of the Earth's surface or subsurface, and represent spatial and functional relationships. Unfortunately, up to this time, there has been little recognition of such relationships in the management of land data.

Besides a variety of forces which tend to isolate one agency's responsibilities, activities, and information from those of related agencies, there are physical impediments to integrating land data even when its sharing is desired or attempted. Such obstacles are particularly evident where mapping activities are concerned. It is rare that Federal, State, and local agencies cooperate with one another when conducting ground surveys, aerial photography, and mapping. Bureaucratic inertia may explain only a small part of such situations; conflicting use requirements, accuracy standards, mapping scales, and extents of coverage combine to limit the usefulness of a given mapping program. A State government, consequently, may simultaneously undertake programs for tax mapping, wetlands and floodplain mapping, geological mapping, and transportation mapping; and none of the products of these programs may be relatable to the others. Naturally, a single map cannot optimally serve all kinds of map users, but the basic steps in preparing maps (monumentation, surveying, aerial photography, photogrammetry) can be consolidated into a mapping program capable of generating maps of typically required accuracy and content. If various public and private agencies cooperate, sharing these basic costs, then multiple benefits are possible in return.

No nationwide information on the total cost to government of maintaining land records is available. However, a recent Wisconsin study catalogued all public (i.e., local, State, and Federal) plus utility company land record activity. The objective of the study was to assess the extent, cost, quality, and usefulness of the land records of these agencies and companies. The findings are discussed in appendix A.

The Wisconsin study showed that government agencies and utilities spent nearly \$79 million on land record activity in 1976. This amounted to a per capita cost of over \$17. Substantial overlapping also was found in mapping programs at all levels of government. Some of the overlap was due to differing needs and efforts to minimize costs within an agency. In other instances, there simply was an unawareness of the duplication.

The Wisconsin case study concluded that a uniform large-scale map base should be developed, along with standards to be used for all land data. Further, it was recommended that land information be decentralized and made accessible to citizens, and that electronic data processing be used to facilitate the process.

### Summary

In summary, current land records in the United States suffer from the following deficiencies in organization:

- \* Isolation of transfer data from status data.
- \* Balkanization of status data by agencies which may not mutually cooperate.
- \* Lack of parcel indexing when transfers occur, resulting in dysfunctional deed archives.
- \* Incomplete and inconsistent parcel indexing among agencies collecting parcel data.
- \* Overlapping data collection activities.
- \* Uncoordinated mapping efforts, lacking standards for map scale, accuracy, symbolism, size, and classification.
- \* Lack of up-to-date, reliable parcel (tax) maps.
- \* Primitive and bulky archival storage media.
- \* Capricious accumulation of data due to vagueness of policy guidelines.

#### MPLDS CRITERIA AND CAPABILITIES

The adoption of even minimal MPLDS's at the local level would solve many of the problems of current land data systems. This basically requires that all land data collected by a county would be tied to a parcel number uniquely identifying the parcel to which the particular datum pertained. The existence of a parcel identifier index then allows each data item to be linked, via its associated parcel identifier, to all other data items existing for that parcel (see figure 10-1). In particular, all deeds, judgments, and other documents relevant to the validity of title to a particular parcel could be quickly located--in contrast to the tedious searching required in jurisdictions using grantor/grantee indexing.

These advantages result merely from the adoption of parcel identification and indexing. Further extensions of this basic MPLDS are possible and have been adopted in a number of jurisdictions. The existence of parcel maps annotated with parcel identifiers--something available in many jurisdictions already in the form of assessor's tax maps--allows geographically defined subsets of parcels to be selected quickly and provides a necessary basis for the spatial analysis of parcel data. The computerization of land data, and the adoption of data management techniques such as microfilming and the adoption of uniform standards for handling deeds and other written data records, is of obvious usefulness. Furthermore, once data are put into some machine-readable form, they are subject to manipulation via a variety of special-purpose analytical software (computer programs). Digitization of maps, along with the installation of hardware and software for graphic output of maps and other displays, provides a further possible extension of an MPLDS. Several existing systems illustrate the possibility of such extensions beyond minimal MPLDS's, and the sections which follow outline how increasingly sophisticated MPLDS capability can be acquired by localities in an orderly, step-by-step fashion.



## Single vs. Multipurpose Information Systems

Since there is no specific entity defined as a land data system, it is difficult to specify the point at which a single-purpose system becomes a multipurpose system. First, at the root of any land data system is the ability to discern the arrangement of objects on the Earth's surface, to deal with geographic facts. Beyond that, however, many configurations and capabilities can and do prevail. Scales and extents of coverages may be fixed or flexible; locational coordinates which tie spatial entities to maps may or may not be used. Many variables may be included, or only a few, and those that are may be capable of being related to one another or may have no linkages. Facts held in the system may be subject to aggregation, tabulation, cross-tabulation, time-series analysis, or other mathematical/statistical manipulations, but levels of analytic sophistication vary widely.

Second, the capability of the system itself is at least as important as the data files it contains--that is, simply because data are stored in a digital computer does not mean that any manipulation of those data which is conceivable is therefore possible. Some data systems are powerful, some flexible, some both, but all have limits. Many are designed to optimally perform certain sets of operations (e.g., clerical operations, statistical analysis, graphic display) at the inevitable expense of others. The multipurpose concept, then, implies a given set of intended applications, and this set may be large or small. What the concept excludes perhaps defines it better than what it may embrace: the traditional form of manual record-keeping in organizations often amounts to multiple sets of single-purpose information systems. This is particularly true with respect to most of the land data records in the United States. Separate files generally exist for such functions as assessment, title recording, zoning, building permits, and fire and police services. To the extent to which such records are used for the purpose of a single agency, they are single-purpose systems. Difficulties arise when an attempt is made to compile data from two or more single-purpose files. Such a capability often is needed to answer questions about a particular parcel or location. For instance, should a locality pass a law prohibiting or regulating transfer of real property for which taxes were owed, most jurisdictions in the United States would be hard-pressed to verify whether a given real estate transaction met such requirements. A comprehensive multipurpose land data system would make answers to such queries simple, perhaps automatic, and potentially instantaneous.

An MPLDS need not be technically sophisticated or elaborate. It need not, in fact, be computerized--or it may be partially computerized. It probably is unrealistic to expect smaller land recording units to automate, with all the attendant expense and technical overhead, when semiskilled and/or part-time clerks are adequate to keep the system functioning. It is not unfair, however, to urge that land data systems be universally rationalized to process information as if they were to be computerized. What this means is that whatever facts about land and landownership which do exist should be readily retrievable. This should be possible without need to rely on the personal (but often prodigious) knowledge of local officials, "old-timers," or upon bureaucrats who have made a specialty of knowing how to track down



scattered records in local archives. In rationalizing local land records, cooperation and agreement among the administrative units which now maintain land data will be necessary as to such factors as items to be included, standards, parcel identifiers, and parcel indexes. To fulfill the potential of the MPLDS idea, however, physical integration of separate data bases will not be necessary.

### Importance of Maps

Maps, an important part of single-purpose data systems, are even more important for systems such as the network MPLDS. This increased importance is related to the usefulness of maps in parcel identification systems and the relating of land data from two or more files to a specific location on the Earth's surface. Two basic ways are available to relate land data to geographic location:

- \* Administrative hierarchies can be coded as numbers (e.g., State-county-municipality-block or section-quarter-section-sixteenth-section).

- \* Plane (x, y) coordinate pairs measured from maps (e.g., the location of a parcel's visual centroid) can be concentrated into strings of numbers to form identifiers which are unique by location, within 10 feet, 1 foot, or whatever tolerance is needed.

Clearly, the second approach provides considerably more precision than the first. However, the first permits aggregation into any level of the spatial hierarchy desired. Therefore, no greater precision is needed than the specific output requires. Moreover, the coordinate method requires the use of a map for making the initial assignment of coordinate parcel identifiers. While highly accurate maps are not a prerequisite for maps used in identifier assignment, the accuracy standards of such maps should be documented for future reference. The relative merits of these and related approaches to parcel identification were discussed at the Atlanta CLIPPP conference,<sup>11/</sup> the proceedings of which clearly document the technical issues involved in constructing compatible parcel identifier systems.

In addition to their use in assigning parcel identifiers, maps currently serve many administrative and planning needs of local governments. For field use and for storing and displaying spatial statistics, the typical tax map provides a quite adequate base. However, because of many inconsistencies that typically exist (e.g., among maps of surveying and assessing offices and title descriptions), the rectification of such maps will be a major cost factor in the construction of a network MPLDS. The benefits of doing so, however, would be numerous. Principally, the integration of land status and transfer data would be served, creating a juridical cadastre, a parcel inventory which constitutes the official legal description of each parcel contained.

Many States and localities currently are engaged in property mapping programs, some in massive fashion. Few localities, however, are aiming at

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<sup>11/</sup> Moyer and Fisher, supra, note 4.

a juridical cadastre, or would even certify that their property maps are definitive. Forsyth County, N.C., has attracted widespread attention by virtue of its efforts to create what is, in effect, a juridical cadastre in computerized form.<sup>12/</sup> The project not only aims to integrate land title records with land status records, but also to create computerized property maps of high planimetric accuracy. The maps, in turn, will serve as the source of parcel identifiers (using the visual centroid scheme recommended by the CLIPPP conference). As they will be in digital form, the parcel maps can be regenerated in a variety of scales, selecting certain districts, showing certain parcels, or using symbolism describing a variety of social, economic, environmental, or legal phenomena as they relate to the ownership units.

The computer maps thus can serve as efficient data communication media, abstracting information in ways which can make spatial patterns immediately apparent. Their inexpensiveness (\$5 to \$50 each, depending on size and content) and rapid availability (usually less than an hour to produce) make them attractive as management tools, in ways with which manually produced maps cannot compete. Figure 10-2 is a modest example of a computer-generated parcel map with nominal land use codes applied. Other, larger scale versions also might identify lot sizes, identifiers, and property line distances and bearings. (See appendix C for further examples.) Currently available computer mapping technology permits selection (and aggregation) of parcels having specific use codes, shading of parcels instead of annotating them, and multicolor output.

The Forsyth County Land Records Information System is virtually unique in the United States as a computerized geographic information system which includes both land title records and map coordinates. The latter type of data are in widespread use in municipal information systems and computerized chains of title exist in a few recording jurisdictions (but more frequently in private title plants), but few systems have attempted to merge status data, map data and title data. The most likely reason for this is that multipurpose systems developed to date normally are for administrative and planning purposes, for which land title data are of no particular import or at least have not been recognized as such. Similarly, recorders normally have no official interest in property use, size, or value, and thus no incentive to help improve cross-reference parcel indexing systems. Nonetheless, reports of changes of title must flow somehow from recorder to assessor and other local officials, and such updates could be automatic with a network MPLDS.

#### Costs of Mapping

Because mapping costs are a major factor in the implementation of a network MPLDS, the recent experience of several jurisdictions in mapping programs provides useful information on these costs.

To estimate how large these costs might be, a number of officials involved in State tax mapping programs were contacted to obtain information on the

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<sup>12/</sup> William A. Campbell, "Modernization of Land Records Systems in North Carolina," Proc. North American Conference on Modernization of Land Data Systems, 1975, pp. 181-188.



Figure 10-2



Source: IBM Corporation, Geographic Data System Aids Land Use Planning: Eugene, Ore. (Application Brief GK20-1148-0).



costs of those programs. The figures from different States are not strictly comparable (the State programs surveyed varied widely in such parameters as scales, accuracies, extent of new monumentation required, etc.), but they do provide some indication of the expenses of current mapping efforts, as indicated below:

<u>Area covered</u>	<u>Cost</u>	<u>Comments</u>
Vermont	50¢/acre <sup>13/</sup>	No overlay preparation. Only preparation of photographic base maps. Program primarily relies on existing monuments.
Roanoke County, Va.	\$15/parcel	
New York State	\$10/parcel	
Suffolk County, N.Y.	\$8.63/parcel	
Oregon	\$9.50/parcel	
Maritime Provinces (LRIS)	\$18.70/parcel	U.S. equivalent of Canadian \$

Except for the Vermont mapping program (which consists entirely of producing orthophoto basemaps with no cartographic enhancements), the areas surveyed seem to be fairly consistent on a cost-per-parcel basis, all varying within a factor of 2. The Vermont program cannot be compared directly, as it does not delineate parcels, leaving that task to the cities and towns to which the orthophoto base maps are distributed. The highest cost, which simply may reflect a more thorough accounting of the component expenses of parcel mapping, occurs in the Maritime Provinces' Land Record Information System (LRIS), which over 5 years has mapped about 200,000 of the estimated 850,000 properties in New Brunswick, Nova Scotia, and Prince Edward Island.<sup>14/</sup>

Another element of mapping costs concerns the degree of urban development in the region being mapped. Costs for initial monumentation are higher in urban than in rural areas, as monuments must be much more closely spaced. But on a per parcel basis, costs generally are lower in urban areas, due to economies of scale in all components of the mapping process.

Mapping costs also may vary according to the procedures, technology, and accuracy standards employed by a mapping program. Orthophoto base maps, necessary in areas of rugged terrain for accurate photogrammetry, cost more

<sup>13/</sup> Comparable to about \$11.50 per parcel, based upon the number of tax parcels in State.

<sup>14/</sup> Hans K. Larsen, "Preliminary Report: LRIS and Non-Resident Ownership Monitoring," FIRE study, 1979, pp. 20-21.

than the rectified and scaled air photos that most mapping efforts rely upon. Costs rise sharply as greater accuracy is attempted, and more field work, or even an entirely different methodology, may be required when centimeter accuracy is the standard. Because urban densities and urban land values are so much greater than suburban or rural ones, different accuracy standards (and mapping scales) may be demanded when mapping properties in different locales. This assumption has been incorporated in the cost analysis of a nationwide network MPLDS discussed below and in appendix D.

It is worth noting that Oregon, despite being the least developed of the six areas compared, has one of the lowest costs per parcel. This is made even more surprising when one learns that the method used by the Oregon Department of Revenue to locate property boundaries is the most tedious and expensive of all--using direct cartography from survey and deed descriptions without particular reliance on aerial photography. Property mapping by means of translating legal descriptions on deeds into true-to-scale graphic representations of boundaries is a slow process and requires good monumentation. It probably is only because of the use of automated cartography that this procedure can be followed without generating exorbitant costs. The Oregon Department of Revenue recently installed a computerized cartographic system, and in its first year of operation apparently has quintupled cartographic productivity.<sup>15/</sup> This advanced cartographic system is described in detail in appendix C.

Mapping costs were combined with other costs to provide an estimate of total costs to implement a network MPLDS nationwide. This cost estimate, contained in appendix D, assumes a minimum data set that would build on the current assessment office record system. The system would contain sufficient data to provide foreign ownership of real estate information.

In appendix D, certain assumptions are made regarding the per unit costs of base mapping and the per parcel costs of property line mapping, in the economic feasibility analysis of the network MPLDS. The analysis concludes that the total cost nationwide of creating local MPLDS's of sufficient quality and power to track landownership would cost \$3.35 billion. It also is estimated that over half (i.e., \$2.18 billion) already has been invested by State and local governments. The gross estimated cost (\$3.35 billion) of the network MPLDS is about \$39 for each of the 86.6 million privately owned parcels in the United States. The mapping component accounts for about half of this estimated total network MPLDS cost (i.e., \$20 per parcel). The discrepancy between this average figure and those reported above from several States probably is accounted for by the assumptions made in the analysis regarding the need for orthophotography. In regions where orthophotographs would be unnecessary (e.g., most Midwest and Plains States), the cost of the mapping component of an MPLDS probably would be closer to \$10 per parcel than to \$20 per parcel.

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<sup>15/</sup> At least in the sense that it can produce as many maps as 10 cartographers, but only two need be hired to run at capacity. See Oregon Department of Revenue, "Report to the Joint Legislative Committee on Data Processing on the Computer-Assisted Mapping System (CAMS) Installed in the Department of Revenue," November 1978, p. 8.



## GOVERNMENTAL ROLES IN MPLDS CREATION AND OPERATION

Local, State, and Federal government agencies all have interests in the operation of local MPLDS's; the question therefore arises of how these three levels of government should allocate among them the tasks of specifying the system to be created, creating it, and maintaining it. Two important considerations are relevant. The first is that in the absence of compelling factors pointing toward centralization and standardization, substantial flexibility should be left at the local level. This flexibility is necessary because of the diversity of local resources and requirements, and because of the fact that the primary need for land related data--notwithstanding specialized Federal problems such as tracking foreign direct investment--is at the State and local levels. Zoning, property taxation, and title clearance all are matters of predominantly State and local concern. On the other hand, other factors point to the desirability of at least some direction from above.

### Federal Role

If there is significant Federal interest in such information as foreign investment records and the data can be more cheaply and easily collected by local governments, it would be more sensible for the Federal Government to encourage local collection of the data and to reimburse the localities for any expenses incurred. For example, in situations where there is Federal interest in real estate transfer data (e.g., to track foreign investment in land), the Federal Government might ask local land registries to record only deeds submitted by grantees who also agree to submit a statement indicating whether they are foreign or domestic in whatever sense the Federal Government considers relevant. The form would require further information of any grantees identifying themselves as foreign citizens. The local government could then assemble all such forms collected in any given period, screen out the ones for foreign grantees, and submit them, or a summary of them, to the Federal Government. A prototypical form which grantees might be required to fill out is shown in appendix A, exhibit 10A-2.

Second, to the extent that at least part of the justification for local adoption of an MPLDS is to facilitate Federal land data collection efforts, it makes sense for the Federal Government to have a role in developing minimum standards and requirements for such systems. Finally, considerable economies of scale may be realized by performing functions such as aerial photography (the principal basis for most large-scale mapping) at the State rather than the local level.

### State Role

There might be a number of roles for State governments. This is illustrated by State involvement in tax mapping programs. For example, States might provide revenue sharing incentives to encourage local MPLDS formation. New York State, for instance, in a program administered by its Board of Equalization and Assessment, provides about \$4 per parcel to counties when they complete the tax mapping programs mandated by State law (the costs incurred



by counties in preparing such maps approximate \$10 per parcel).<sup>16/</sup> Alternatively or additionally, the State can require local mapping and specify standards to be followed by counties in preparing maps. This also has been done by New York State.<sup>17/</sup> (Even where State standards are set, some counties may choose to go beyond them. In New York, for example, Suffolk County has purchased digitization and graphic output hardware and is considering, in the long run, digitization of parcel boundaries, although this is not required by the State.<sup>18/</sup>)

States also may actively participate in the creation and maintenance of tax maps. In Vermont, for example, the State is conducting the aerial photography component of the mapping program. Overlays (parcel boundaries, etc.) are being prepared by the individual townships, each of which is being provided with two copies of the relevant base photographs.<sup>19/</sup> In Arizona, the entire mapping program has been conducted by the State, with some assistance from the Federal Government in conducting the aerial photography.<sup>20/</sup> Finally, States can serve as a central repository of a subset of MPLDS data collected and maintained locally. For example, State agencies can assemble collections of local parcel maps, summaries of local data, or statewide "parcel inventories." The Federal Government could have a similarly broad range of roles, though it probably would be preferable to confine Federal involvement to setting up special systems and providing specifications in areas important to it (e.g., foreign investment).

#### Local Role

Leaving aside the degree and kind of State and Federal participation in MPLDS activity, we can hypothesize how localities might acquire MPLDS capabilities on their own. The scenario which follows, while describing no particular locality, could be applied to many counties and municipalities across the country searching for better ways to administer their territory. It stresses an evolution of information-handling capabilities proceeding in small steps from a rudimentary MPLDS to a sophisticated one. The path of development could vary from this scenario (the order in which capabilities are added could be modified in most cases without difficulty); the functional MPLDS categories described, however, are identified with extant municipal functions and subsystems, and therefore are likely to serve as MPLDS steppingstones, regardless of locale.

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<sup>16/</sup> Personal communication, Al Ludick, New York State Board of Equalization and Assessment, March 17, 1979.

<sup>17/</sup> See Board of Equalization and Assessment: Assessor's Guide to Tax Mapping (1971), County Director's Guide in the Preparation and Maintenance of Tax Maps (1971), Model Technical Specifications for Tax Mapping in New York State (1975).

<sup>18/</sup> Personal communication, Paul Canalizo, Real Property Tax Services Agency, Suffolk County, N.Y.

<sup>19/</sup> Personal communication, Harry Roush, Vermont Mapping Program, Property Valuation and Review Division, Vermont Tax Department.

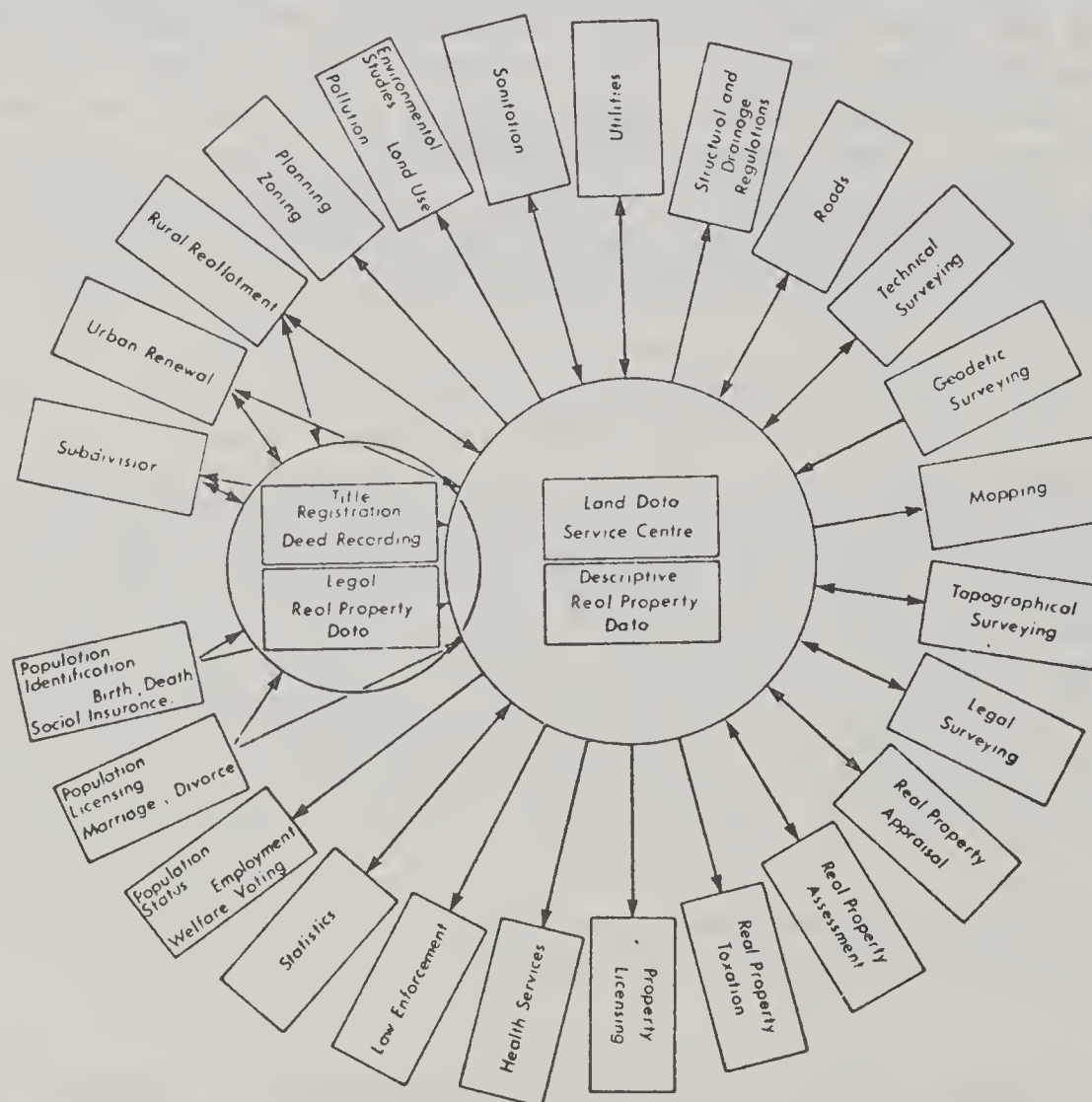
<sup>20/</sup> Personal communication, Seth Franzman, Division of Property and Special Taxes, Arizona Department of Revenue.

## EVOLUTION OF MPLDS: A SCENARIO

### Introduction

Although an MPLDS ideally should be capable of integrating land records of every description, in practice this goal is never reached. Just how much data this may entail is revealed in figure 10-3.

Figure 10-3



Source: Hartmut Ziemann, "Land Unit Identification, An Analysis," National Research Council, Ottawa, Canada, NRC 15736, December, 1976.



## The Fiscal Cadastre as the Core of an MPLDS

Regardless of what other land data they maintain, local governments are very careful to keep up-to-date inventories of property ownership parcels. Purposes of these inventories include property appraisal, tax assessment, and tax collection. While certain classes of owners and uses may be exempt from taxation, those parcels often are still on the tax rolls, as their tax status may change and municipalities are interested in knowing how much tax-exempt land they contain.

A given parcel may belong to more than one tax-collecting jurisdiction, and thus may be listed in several such inventories. There will almost always exist, however, a general tax roll for each county or municipality containing (in theory) all taxable properties. It is this tax roll which has been most frequently advocated as the basis for an MPLDS.<sup>21/</sup>

Moreover, if any functions of a local government are automated, the tax collection function normally is among the first to be computerized.<sup>22/</sup> This may, in its most primitive stage, simply consist of a mailing list and a program to print and address tax bills, with or without any accounting capabilities. Once the tax roll is computerized, however, many other operations can be carried out on that data base. Sales-assessment ratio studies and multiple regression appraisal are two common approaches to the problem of equitably administering property taxation, and both are facilitated by the existence of a computerized tax roll.

A cadastre as comprehensive as the above prototype (which is not highly sophisticated) is capable of providing data to answer many different questions. With regard to foreign investment in real estate, one might tabulate extent and value of property by land use, ward or precinct, and date of purchase.

Such tabulations can be made for all properties, or only those properties owned by corporations or nonresident aliens, so that comparisons can be made among subsets of owners with regard to selected criteria. The power of an MPLDS is connected strongly to the facility to select subsets of facts and to choose a context within which to evaluate them. A single-purpose data system monitoring foreign direct investment would be unable to deliver such analyses; while it might tabulate the amount, value, and location of land held by nonresident aliens, it could not evaluate the importance of such data. To estimate the impact of foreign direct investment on a locality, facts describing that community must be available for comparison with the data, and a local MPLDS seems to be necessary to accomplish this task.

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<sup>21/</sup> Gene Wunderlich, "Juridical or Fiscal Cadastre: Economics of Land Information Systems," Proc. North American Conference on Modernization of Land Data Systems, Washington, D.C., 1975, pp. 47-67.

<sup>22/</sup> See Richard Almy's report on State and local assessment practices, chapter 8.



### Refinements: Environmental Data

Once a fiscal cadastre is in operation, other sorts of data pertaining to parcels could be incorporated. These might include environmental characteristics, such as codes for land use, land cover, slope, soil, and geology. Administrative information also can be appended to indicate which parcels are in given school districts, wards, zoning districts, census tracts, etc. And just as readily, characteristics of ownership can be coded into the cadastre; the citizenship, residence, date of purchase, place of incorporation (if a corporation), and other facts about each owner of record can be included if they are available. Additional data might be drawn from local records or from nonlocal sources, particularly the U.S. Census of Population and Housing (if disclosure limits permit), soil maps, or special government surveys. Because much environmental data are not available at the parcel level, aggregations or estimations would be required frequently. Indeed, a great variety of data collection units are in use; some such zones have hierarchical relationships (e.g., parcels and blocks, blocks and census tracts), but other data zones crisscross arbitrarily (e.g., soil zones and parcels, school and congressional districts, watersheds and counties, parcels and easements).

Two basic strategies are used to handle membership in multiple zones, one principally for hierarchical relationships and the other for arbitrarily intersecting ones:

1. An identifier for each zone of which the parcel is a member may be appended to the parcel's record.
2. The centroid of the parcel can be compared geometrically with the outline of any arbitrary zone to determine whether some or all of the parcel intersects the zone.

The first method probably allows faster reaggregation of data into different spatial units, but requires that each parcel record include additional identifiers. This expands the size of data files and introduces additional costs for data entry. The second method is more flexible, but may consume considerable computation resources to reaggregate data or require refined storage techniques. It also requires files of coordinates digitized from maps. Such files can, of course, be used to draft a variety of maps themselves.

### Refinements: Geographic Coordinates

The MPLDS evolution hypothesized thus far is similar in structure to many business and government data bases. As such, it contains a multitude of records, each representing a parcel and having a prescribed set of data fields. As data content is expanded, multiple files of such records may arise, all of which could be collated using parcel identifiers to match records. Such a data base can be stored and manipulated in this basic "unit-record" format or placed in a data base management system (DBMS). These are available from many commercial software houses. A DBMS permits complicated conditional queries to be answered which would be tedious, if

at all possible, using unit-record techniques. More and more managers and analysts are becoming familiar with DBMS techniques for the reporting of statistical profiles from data bases, and such trends surely will continue.

A new set of data processing issues arises when an information system has to deal with map data in the form of digitized plane coordinates. To some degree, coordinate data may be maintained in unit-record format, particularly if they consist of the x-y locations of parcel centroids. However, should data be entered to represent the outlines of parcels and other zones, rather different data processing concepts may be called for.

The shape and size of parcels normally are digitized as lists of point coordinates, containing one point to represent each location where a boundary changes direction. Thus, a rectangular lot can be described with only four point coordinates, but more complicated parcels may require dozens of coordinates to describe them. The larger the area of a zone, the more points normally are needed for its boundary description, and the more variable will be the required number of coordinates from zone to zone.

Boundaries normally must be digitized from maps (although technological advances are now allowing direct digitization of locational coordinates in the field by surveying teams), and this leads one to wonder why the maps themselves are not adequate to store and present the boundary lines. That is, why go to the expense of creating digital abstractions of graphical data which already are in a familiar and highly useful form? A number of reasons can be put forward:

- \* Physical maps tear, shrink, stretch, burn, get stained, and mislaid; digital maps rarely degrade, and copies are equal in quality to originals.

- \* Updating and correcting physical maps eventually leaves them cluttered and smudged, and after each update copies must be distributed to users.

- \* Digital maps can be drafted as physical maps at any map scale consistent with the accuracy of the source data.

- \* The content of computer-drawn maps can be altered to suit the purposes of each map and map maker.

- \* Statistical maps using a variety of symbolisms can be generated rapidly with computer techniques. Manual production of many of these would be cost-effective.

- \* The boundary coordinates of digital maps--particularly street networks--have important analytic uses when decisions must be made concerning the accessibility of locations with respect to either moving or stationary phenomena.

- \* Spatial overlay of digitized data can be as useful as physical map overlay techniques, and offers greater depth and breadth of analysis.

- \* Metric conversion is trivial with digital maps but tedious with physical maps. Likewise, digital maps may permit a choice of map projection types.



\* Less skill, training, and time are required of personnel to generate digital maps than to draft maps manually.

Despite such advantages, the leap from conventional to digital mapping is rarely simple or painless. Graphic input devices (digitizers) and output devices (plotters, CRT terminal) still are relatively expensive and all require programming (software) support (although most manufacturers attempt to standardize their graphic hardware). Data base management techniques that work well for nongraphic data often are found inadequate or inefficient when given map data. Maps to be used as source data are found to contain geometric distortions and inconsistencies which were never noticed before.

Once digitized, the map parcels must be matched with those already in the MPLDS. Then more interesting errors may come to light. At this point, any mistakes made in entering parcel identifiers can cause problems, and many true discrepancies will make themselves known. Properties digitized from a map may fail to exist in the tax roll, and in some localities this could occur with enough frequency to represent a substantial amount of lost revenues. The rigor which automation demands and the precision it yields have both positive and negative aspects. The difficulties, however, are mainly in the beginning stages of creating an MPLDS, but the benefits will continue to flow indefinitely.

#### Refinements: Land Title Data

So far, the scenario has concerned itself only with land status data and map data, and thus has not addressed the principal deficiency in U.S. land records, the traditional separation of title (ownership) data from the above. There is no reason why such data are incompatible with an MPLDS, however, and many benefits could result from making chains of ownership and legal descriptions of parcels more accessible to public agencies and private citizens. Many of the advantages are small, long-term savings, unlike the obvious impact of, say, computerizing the property tax roll. They will accrue, however, to both the public and private sectors. The potential for savings is vast, as Moyer<sup>23/</sup> has described, and is difficult to accurately quantify in all its complexity. Consider, however, that if the estimated private real estate transfer costs of \$7 billion per year in the United States are correct, should only 10 percent of these expenses be eliminated by virtue of better organized land title data, the savings would amount to roughly \$200,000 per year in each deed recording jurisdiction. This is roughly comparable to the costs involved in modernizing a deed recording office via tract indexing, microfilming of records, and computerization of chain of title (in medium-sized jurisdictions). Viewed in the context of the MPLDS cost estimates presented in appendix D, the total \$3.35 billion required to establish a nationwide system of local MPLDS's is less than half the estimated annual costs of transferring U.S. real estate. That is, the projected costs of creating a nationwide network MPLDS framework

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<sup>23/</sup> D. David Moyer, An Economic Analysis of the Land Title Record System, PhD Thesis, University of Wisconsin-Madison, 1977.



(essentially a one-time capital expense) are well within the ongoing annual expenditures for land transfer, the burden of which will continue (and can only increase) unless land data systems are rationalized and modernized. (While a network MPLDS will require ongoing maintenance of the data base, this updating function is assumed to be no larger than current maintenance costs for the numerous separate systems the network MPLDS would replace.)

There are a variety of ways in which land title data can be modernized and integrated into an MPLDS. The most rudimentary is simply to annotate each deed or other transfer document with a permanent parcel number. This would facilitate subsequent research involving properties as well as contributing to a complete reorganization of records, should this modernization be continued.

A more ambitious step would involve computerizing most of the locality's grantee-grantor indexes to deeds, so that chains of title could be printed out upon demand (going back as many years as practical or necessary), with each transaction in such a chain listed with a document number indexing the document recorded at the time of transfer. Although not strictly necessary to accomplish this task, parcel indexing should be incorporated into the automated index. Without it, one would have to know the name of the current or former owner of a given parcel to obtain its title history, and since persons' names are not unique and some individuals own many pieces of property, the lack of parcel identifiers would continue to be quite frustrating.

Essentially, computerizing grantee-grantor indexes and incorporating parcel indexes in such files is what title plants do to maintain their records. They also acquire copies of or information from legal documents from courts and other public archives which pertain to land titles. While title records themselves are central to the determination of ownership, they are not the only relevant records. And because the State does not actually guarantee title in the United States (except for the small proportion of titles registered under a "TORRENS" system), the collating function served by private title plants fills a necessary need that no single public agency has undertaken. Were the State to guarantee land titles actively, much better public land records would be maintained, and the title abstraction and insurance industries would not exist as we know them.

Automation of chains of title does not require transcribing deed and other legal documents into computer-readable form. What is stored in the computer are references to documents, not the documents themselves. The actual documents may be bound into books or stored on microfilm; only the indexes to them are computerized. This means that one must still refer to the documents themselves to obtain legal descriptions and other information about ownership parcels.

Therefore, another step is possible when automating land title records, and that is to computerize the physical description of each parcel. This does not have to be done in the language of a deed, but does have to reflect

"the facts that a correct survey will show"<sup>24/</sup> describing property corners and boundaries. The shape and extent of parcels essentially are graphical, two-dimensional (but sometimes stretch into three dimensions) facts which are presented best in the form of maps. When deeds and subdivisions are registered, maps often accompany the written documents. Rarely are these maps drawn true to scale, although many are annotated with distances and bearings which would enable an accurate map to be constructed. Likewise, it is far from universal that assessor's or any other type of parcel maps are prepared for localities by using these legal descriptions of parcels contained in deeds. Some private firms engaged in tax mapping try to avoid using title document descriptions if possible,<sup>25/</sup> preferring photogrammetric techniques.

If title descriptions were used in preparing tax maps, however, the maps themselves might serve as legal evidence in cases of boundary, frontage, or area disputes. This is the path chosen by Oregon's Department of Revenue, which last year (1978) installed its Computer Assisted Mapping System (CAMS) for the production of property maps. This \$280,000 facility operates as a service bureau for Oregon's 36 counties, producing tax maps from deed descriptions at a cost of under \$10 per parcel.<sup>26/</sup> This system is described briefly below and documented in appendix C.

The Oregon mapping process is totally automated, the hardware consisting of a minicomputer, teletype, graphic CRT terminal, graphic digitizer, flatbed plotter, and disk storage. Data are entered as a series of overlays, using, e.g., survey monumentation, property boundaries, political boundaries, and various annotation sets (including distances and bearings for property lines, and parcel identifiers). Maps can be tailor-made at any desired scale and include whatever sets of overlays are of interest. Accuracy and graphic standards are high and uniform, and the system has been judged to be more productive than the manual methods it superseded. During its first 13 months of operation, in fact, CAMS was about 15 percent less expensive to operate than had been projected, requiring \$244,000. Note, however, that while the work done by this system is supportive of land title automation, it does not accomplish this goal. The products delivered to the counties are hard-copy maps, not digital files, and the title indexes maintained by the counties are not affected, although at least one Oregon county (Lane) is automating title records and integrating them into a larger data base.

The Lane County, Oreg., Geographic Data System is described in appendix B as an example of an "advanced" MPLDS. There is no administrative relationship or data flow between the Lane County system and the Oregon tax mapping program described above; that these two state-of-the-art efforts have occurred in a single State appears to be purely coincidental.

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<sup>24/</sup> Legal lore, quoted by Gurdon H. Wattles, "Surveying Accuracies as the Basic Consideration in a Land Record System," Proc. N. Am. Conf. on Modernization of Land Data Systems, April 14-17, 1975, Washington, D.C., p. 199.

<sup>25/</sup> James Lyons, the Sidwell Company, W. Chicago, Ill., private communication, March 1979.

<sup>26/</sup> Robert Mead, Oregon Department of Revenue, private communication, March 1979.



## MPLDS FEASIBILITY

### Introduction

The discussion thus far has outlined the status of the present land record system, noting in particular several serious weaknesses. Also, a possible approach that could be used for the phased implementation of a network MPLDS has been suggested. From this discussion, it should be clear that a network MPLDS is feasible in terms of technical and administrative criteria. This section focuses on a third feasibility area, economic feasibility.

### MPLDS Feasibility: Costs

Due to the variety of forms and complexity possible for land data systems, estimating the costs of providing them on a nationwide basis is difficult. Some of the factors which contribute to this are:

- \* Variation in the types of data included (e.g., property value, chain-of-title, administrative and environmental data, and digital maps).
- \* Variation in technological sophistication (e.g., manual or automated, scale of hardware, and use of computer graphics).
- \* Urban/rural variations in parcel density and use, and the consequent costs of mapping.
- \* Uncertainties regarding potential economies of scale, based on the size of jurisdictions and the number of agencies which cooperate in maintaining a data system.
- \* Problems in calculating public and private savings which might accrue from rationalizing and data records, or conversely, the costs of not adopting MPLDS's.

In an attempt to overcome these things, an analysis of MPLDS cost has been prepared (presented in full in appendix D). The analysis attempts to quantify only the most basic and universal components of land data systems--an MPLDS capable of keeping track of the ownership, value, use, location, and size of all parcels in a given jurisdiction. Such a minimal system would require the following components:

- \* (Photographic) base mapping.
- \* Property line mapping.
- \* Parcel identification and indexing.
- \* Property characteristic enumeration.
- \* Property evaluation.
- \* Entry of parcel data into (manual or automated) files.



The analysis assumes certain per unit area costs for base mapping activity (varying by region and within region by degree of urbanization). Property line mapping costs were estimated on a per parcel basis (also varying by region and organization). The remaining categories were calculated on a per parcel basis, but did not vary by regions (however, property enumeration and evaluation costs were tabulated separately for residential, farm, and commercial uses, then summed).

This procedure (which is more extensively described in appendix D) allowed separate tabulations to be made for nine U.S. regions (the "Census Division"), each for rural territory, urban territory, and all territory, and finally summed for the Nation as a whole. The per unit costs were based on commercial rates for mapping and evaluation, and reflect geographical factors such as availability of U.S. public land survey monumentation and platting, ruggedness of topography, and parcel density. These costs were assumed to be unaffected by jurisdictional considerations involving economies of scale or degrees of automation. However, since a substantial portion of the United States already has sufficiently sophisticated property maps and inventories to serve the purposes of the proposed basic MPLDS model, "investment credits" were estimated (on a State-by-State basis) for work already completed. The "bottom line," then, represents the amount of money which remains to be spent to enhance all U.S. land record systems to a degree of accuracy and sophistication required to retrieve basic facts about any parcel of interest concerning ownership, size, value, location, and use.

The total cost of generating property maps and data for all 86.6 million privately held parcels across the 3.54 million square miles of U.S. territory is estimated in appendix D to be \$3.35 billion. Of this total, \$2.18 billion, or 65 percent, already has been spent, leaving \$1.17 billion to be invested to complete the process. The total gross cost averages out to: \$39 per parcel, \$15 per person, or \$1.50 per acre.

When only rural properties are considered (estimated to number 24.5 million in all and occupying over 98 percent of all privately held U.S. territory), the total cost estimate is \$1.4 billion, of which \$0.9 billion is assumed to have been spent. For rural areas, the average estimates are: \$57 per parcel, \$25 per person, or \$0.63 per acre.

The result of adopting the above minimal network MPLDS would be, in effect, to provide a fiscal cadastre for all localities in the United States (which, it must be reemphasized, may include counties, municipalities, and some special taxation units). If augmented by additional local data and made available to all local agencies which use land-related data, such systems could be extended to applications beyond those possible with the minimal network MPLDS. Such extensions would involve varying degrees of expense and provide varying levels of operation benefits and cost-savings. These would be impossible to quantify except on a case-by-case basis. However, one additional category of expense has been tabulated in appendix D, that of survey monumentation. Without adequately precise second and third-order monumentation, to which it can be tied, a map would not be adequate for most legal or engineering purposes. To relate locations identified on maps to the Earth's surface, there must exist a sufficiently

dense network of surveyed monuments, allowing reliable estimates of horizontal and vertical positional error. While property maps sufficient to implement a fiscal cadastre need not be highly accurate, there is much to be said for compiling more accurate maps in the course of establishing a parcel-based MPLDS. Properly tied to monuments, MPLDS maps could then be used for purposes such as fixing utility locations--and eventually could serve as a basis for a juridical cadastre, should a locality attempt to upgrade its MPLDS to such a level.

#### MPLDS Feasibility: Benefits

Some of the costs of establishing a local MPLDS would be offset by the local benefits such a system would generate. As discussed above, an MPLDS could be expected to create long-run benefits, in terms of planning ability and the capability to conduct land data collection surveys, both at the local and the Federal levels (e.g., such as for Scenario IV, discussed below). But it probably is only the local, short-run, visible benefits which would be treated as offsets to costs, and which would affect the political feasibility of voluntary MPLDS creation by a cost-conscious local government. Principally, the existence of an MPLDS could, in some circumstances, effect visible cost savings at the local level by reducing the labor necessary to collect and keep track of land data and to update maps. (These savings might become more significant as the system becomes more advanced. The State of Oregon, for example, has realized significant cost savings through the digitization of its maps. This process makes updating much simpler and allows the government to invest less in cartographers' time. See appendix C.)

Of course, the cost offsets referred to above would not necessarily be viewed as beneficial by all local interests. An MPLDS, by simplifying the procedures involved in storing, updating, and manipulating land-related data, might tend to displace those persons or organizations which serviced the old system. Thus, the cost-savings in Oregon mentioned above might not be viewed as a boon by the community of cartographers. Similarly, if an MPLDS incorporated parcel-indexed title information (deeds, judgments, etc.), there might be less need and demand for title plants (although, of course, the mere existence of an MPLDS would not necessarily displace the legal analysis and title insurance industry functions). These possibilities are just speculative, however. Telephone interviews with officials in such MPLDS-using areas as Lane County, Oreg., and Fairfax County, Va., failed to reveal any significant political opposition to MPLDS creation.

Voluntary adoption of MPLDS by local governments would be enhanced to the extent that the local community itself perceived a need for such a system. The discussion of Lane County in appendix B makes it clear that there was such a felt need, created by the rapid influx of population and by the planning problems which resulted. In other, more stable communities where planning needs are less acute, or where the land title turnover rate is lower, the formation of any MPLDS (much less a highly advanced one) might be viewed as a locally financed project whose benefits would be felt primarily at the State or national level. Such a perception would, of course, lead to resistance to MPLDS formation.



Two final factors, which may affect the political feasibility of MPLDS formation at the local level, deserve brief comment. The first is the increasing cost-consciousness of local and State governments, and the second is the resistance among many elements of the American community to the expansion, or even the improvement and systematization, of government-run data bases. Considerable crusading in behalf of MPLDS adoption, including clear presentation of cost consequences of both adopting and eschewing a MPLDS, is likely to be necessary in many localities, even if Federal and State financial incentives are available.

### Summary

The first part of this chapter deals with the technical, economic, and administrative feasibility of Scenario III, a network MPLDS. This analysis includes consideration of concepts which underly multipurpose land data systems, current title and assessment record systems, and a suggested approach for building a network MPLDS, starting with local assessor's offices in current operation.

The analysis concludes that the network MPLDS is technically feasible, based upon current state of the art capabilities. However, the analysis concludes that Federal inputs are needed in several areas--notably providing specifications, guidelines, technical assistance, and cost-sharing programs. With these kinds of assistance, technically sound network MPLDS's could be installed by local governments throughout the country.

Successful implementation of Scenario III depends to a large extent on reformation of currently operating land data systems into a MPLDS in each county. Therefore, administrative feasibility is related to whether such reformation is possible and the ease with which it can be accomplished. Based on the suggested approach to implementing a network MPLDS, it can be concluded that such reformation is technically possible. However, as to ease of implementation, it is apparent that a relatively long time period will be needed to implement a MPLDS in each county in the United States. This relatively slow implementation (e.g., compared with Scenario IV) is due to the wide variation and general state of disorganization that currently exists in local and State land records.

Over the long run (i.e., 10 years or more), maximum benefits will accrue to all levels of government (and to the private sector as well) if a network MPLDS is developed. This sort of information network puts the collection and maintenance of land parcel data where it is performed most effectively, at the local level. This system also provides the selective needs of State and Federal governments on a relatively current basis and with data that are quite precise.

Economic feasibility is related to two major factors, the cost of implementing the system and the benefits (or cost-savings) that result from the system. The analysis here provides estimates of costs to implement the network MPLDS nationwide, and discusses in general terms some of the benefits expected.



For instance, the total cost of a network MPLDS is estimated to be about \$39 per ownership parcel. However, about 65 percent of the necessary land surveying, mapping, computerization, and related activities have been completed. Therefore, a net cost of about \$14 per parcel would be required to implement a level-B network MPLDS. (See appendix D.) This amounts to about \$1.18 billion for a nationwide network MPLDS. This cost would be offset in part by reductions in the number of single-purpose land data systems (e.g., for assessment, title recording, and land use planning).

One additional factor that should be emphasized is the cost of updating the information. Such updating is a necessary cost if the network MPLDS is to continue to operate satisfactorily over the long run. Because there are so few multipurpose land data systems, data on maintenance costs are sketchy. However, there are data that suggest file maintenance costs of \$3 or 8 to 10 percent of system implementation costs.<sup>27/</sup> These data could suggest a file maintenance cost of \$3 to \$4 per parcel per year, based upon an implementation cost of \$39 per parcel. Data from more general information systems suggests that annual maintenance may run as much as one-fourth of original system cost.<sup>28/</sup>

One further caveat is in order regarding these file maintenance or updating cost estimates: they should be considered as gross cost figures. The reason for this is that similar, related costs already are incurred in several of the single-purpose local government systems that the network MPLDS would replace. Therefore, the total maintenance costs should be considered in relation to the cost-savings that would be incurred in other parts of the local government land data system.

It also is noted that, regardless of which approach is used, analysis of specific policy issues, such as foreign landownership, will depend on the success in including relevant data in the system. Therefore, successful analysis of foreign landownership assumes a satisfactory solution to the nominal/beneficial owner dichotomy will be found.

## SURVEY MPLDS FEASIBILITY

### Introduction

Thus far, this chapter has examined the feasibility of Scenario III, the network MPLDS. The remainder of the chapter examines the feasibility of the survey MPLDS, Scenario IV.

This analysis deals with what, in bald terms, is a national, composite survey of land data. Such a survey MPLDS is subject now and in future appearances to variations in scope, emphasis, substance, and frequency. The

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<sup>27/</sup> Supra, note 23, p. 519.

<sup>28/</sup> George Leyland, "Cost-Benefit Analysis of Urban Information Systems," in Urban and Regional Information Systems: Service Systems for Cities, Papers from the Seventh Annual Conference of the Urban and Regional Information Systems Association, Kent, Ohio, 1969, p. 101.

analysis relies heavily on a review of several prototype systems. It is hoped that the analysis of these systems, used to collect various kinds of land-related data, will assist decisionmakers who will determine if a multipurpose system is to be implemented and whether the survey MPLDS is preferable to the network system. Further, if the survey system is selected, the analysis in this section should assist in the detailed design of the survey MPLDS, as to its structure, data content, frequency, and related matters.

The several ongoing surveys examined here provide evidence of the feasibility of a survey MPLDS in terms of technical and administrative criteria. However, further detailed analysis should be undertaken, once a final determination of specific scope and content of such a survey is made.

Attention also is given to the economic feasibility of a survey MPLDS, and thus to benefits likely to flow from costs incurred. Such attention, however, will be apparent more from a presentation of details from Federal surveys already existing than from any outline postulated for the survey which MPLDS describes.

Because the orientation throughout is on what exists, there is at minimum that stress on realism. Assuredly, the latter requires as well a skeptic's posture about things too long done "the same old way," and that also conditions what follows. On balance, it is important to reiterate throughout this study that any modern multipurpose system in practical prospect gestates in a complex, developed environment. Even in that setting, sweeping, substitutive innovation should be recognized as the answer when it is the answer, but the equally important logic of incrementally or otherwise improving what is there naturally warrants careful consideration.

#### Scenario IV

Scenario IV, described in some detail in chapter 7, rather dramatically describes what more arid semantics term a survey-type multipurpose land data system (MPLDS). It is a comprehensive, active statistical survey effort by the Federal Government, in the expansive area of "land data."

In its eventual fulfillment, the survey MPLDS would provide aggregated and, to a degree, disaggregated data on land values, land uses, land characteristics, and land-based or land-related policy conditioning magnitudes. The latter amounts may contribute to a statistical profile of people who own, rent, buy, sell, or otherwise deal with land. Alternatively or supplementally, they may provide the data foundation for evaluation of or choices among public policies and public functions.

Though specifics of its ultimate emergence elude easy summarization, the survey MPLDS has very practical credentials. Since in concept it embraces the entire group of what now are separate Federal surveys having a land basis or land connection, the survey MPLDS already has vibrant being. Its reality is a somewhat disconnected assemblage of individual survey efforts, none separately or in concert comprehensive enough to qualify as a full MPLDS system.



The reality is there, nevertheless, and it is formidable. The four surveys described below demonstrate its institutional vitality. First among them is the taxable property values survey, an essential, in present format, of each quinquennial Census of Governments since 1957. No other parcel-oriented survey anywhere matches its nationwide scope.

Much more venerable, the Census of Agriculture began in 1840 as part of the sixth decennial census. The practice of taking the agricultural census every 5 years started 80 years later, and this pattern continues today. There is a timing integration currently in process, however, aimed at achieving identical 5-year sequences for all of the "Economic Censuses." The survey MPLDS, it might be noted, builds on any such instance of compatibility promotion already begun. The Census of Agriculture deals essentially with farm operations and is not parcel oriented. There has, however, been exploration of ways to convert certain data assembly procedures to a parcel basis, and these could well recur, especially if local records evidence greater consistency.

The third and fourth examples comprise a group of surveys within the U.S. Department of Agriculture. One concerning farmland sales prices and values has been conducted in one form or another since 1912. The second, the Resource Economics Survey, is an extensive new survey on land resources first conducted in 1978. In great part, both of these examples are parcel oriented.

#### Feasibility in Fact--Surveys That Already Exist and Will Recur

Taken together, the three survey efforts cited above give some hint of the ongoing, necessary Federal involvement with land records and land information systems. Each represents a major institutional endeavor, each has won acceptance, and at least equally important, each has achieved sustained (though occasionally spare) fiscal vitality. Each is discussed in more detail below. The discussion illustrates, without exhausting examples within the Federal structure, what survey MPLDS activity likely would encompass.

Emphasis on the past and on the future is quite appropriate. There is no doubt that the surveys discussed will continue. Planning already under way for the respective next edition of each has occurred basically because the public uses what the surveys produce. Often the more accurate statement is that the public not only uses results published but also wants more results, in a framework of greater disaggregation. In the dynamic sense, it is precisely the complete response to such public wants that the survey MPLDS is designed to assure, in a cost-effective manner.

#### The Taxable Property Values Survey, Bureau of the Census

Nature and purpose.--During each year ending in a "2" or a "7," the Federal Government conducts a Census of Governments, in accordance with the requirements of title 13, U.S. Code, section 161. Each such census covers four major subject fields--governmental organization, public employment, governmental finances, and taxable property values. Within allowances for

changes deemed in the public interest, the format for these censuses has remained essentially the same since 1957, subject to a consensus that there is nothing sacred in tradition.

The taxable property values survey is a nationwide enumeration and processing effort that provides data on assessed values officially determined for local general property taxation, including:

1. Aggregates of real and personal property assessed values for all primary assessing jurisdictions, States, and the entire country.
2. Existing (de facto) levels of assessment, together with the uniformity evident in such levels, as measured by the relationships between assessed values and sales prices in a sample of measurable sales of real property in approximately 2,000 primary assessing jurisdictions around the country (with much but not exclusive attention to sales of single-family, nonfarm houses).
3. Estimated distributions of assessed values and numbers of parcels within each of seven major property-use categories, for States, metropolitan portions of States, and selected local jurisdictions (primarily counties and cities with a population of 50,000 or more as of the base date used), based on manual, onsite enumeration or computer-assisted enumeration of public assessment rolls in the same 2,000 primary assessing jurisdictions that constitute the realty sales sample panel.
4. Effective tax rates, i.e., taxes billed against a property as a percentage of sales price, found to exist, for single-family, nonfarm houses, vacant platted lots, and all realty as a group, in cities of 50,000 or more population and in their surrounding county areas.

In effect, the survey amounts to, in part at least: (1) a report on that segment of the national wealth represented by property subject to local general property taxation, with the amounts expressed in the form of assessed values; (2) an evaluation of assessment performance, to the extent that ratios of assessed value to sales prices appropriately indicate performance, either by their levels or by their intrajurisdictional uniformity (with respect to a market level of sales prices); (3) indications of property tax burden, with respect to sales prices of realty; and (4) the numbers of real property parcels in each of seven major property uses, for States, metropolitan portions of States, and local jurisdictions of 50,000 or more.

Survey activity elements.--In terms of survey or enumeration function, the taxable property values project consists of seven separate efforts, as follows:

1. Assessment records survey.
2. Recording records survey.
3. Jurisdictional assessment aggregates canvass.
4. Realty sale enumeration.



5. Realty sale transacting party canvass.
6. Realty assessed values enumeration, certainty amounts.
7. Realty assessed values enumeration, noncertainty amounts.

The first two elements above facilitate planning, training, and operational aspects; the third is essentially a 51-State mail canvass; the fourth provides the sample of realty sales, usually from ownership or transfer indexes in local recording offices; the fifth requires direct contact (usually mail) with a transacting party (usually the buyer) involved in the particular real property sales sampled, to obtain sales price and property use; the sixth and seventh comprise the sampling of the assessment rolls in the county or other local assessing offices that constitute the jurisdictional sample.

The two planning surveys provide information about local assessing and recording offices, respectively.

To obtain data for the first of these, the Bureau sends an assessment records questionnaire (form GP-1) to approximately 2,000 assessing officials. Meanwhile, a separate questionnaire on the second subject, recording practices (form GP-2), goes by mail to approximately 3,000 recording officials. By asking questions directly pertinent to the functions performed and to the mechanical and other means of performance, the Bureau obtains information critically useful, not only in the preparation of training materials but also in sample design and survey execution generally.

Technical aspects.--Three aspects receive attention: the land information items involved, survey design, and survey logistics.

Land information in this survey means assessed values, property owners (old and new), property use, and property sales prices, all for individual parcels. Land information also means aggregate assessed values, for all sales or for all parcels in the jurisdiction, in situations where the goal of enumeration is the assembly of all such data on a census basis, or selected parts on a sample basis.

It will be noted that the local offices chiefly involved, those of assessors, recorders, and, in some instances, tax collectors, possess whatever presently exists of the institutional records framework necessary for housing the information. In the collective sense, this is the present local extent of the "network" discussed in this report as Scenario III. State participation occurs by way of the State official with supervisory, consultative, or other administrative responsibility associated with essentially local property tax and property assessment administration. Commonly, this State official heads the department "of revenue" or "of taxation" or "of local government affairs." Functions performed run the gamut of actual statewide assessment of specified types of property, with resulting assessed values provided to the local assessors identified as a consequence of property situs, to calculation of county and State aggregates of all taxable property values, on the basis of assessments provided by local assessors.

Thus, the State official provides the aggregates required for the third among seven activity elements described above. Operationally, this is the first survey effort that follows the planning surveys. It provides benchmark data for immediately subsequent use in survey design and execution.

Enumerators then select individual sales and secure necessary details on-site at local recording offices, in accordance with "take every nth transfer" selection intervals assigned as part of the survey plan. The details so assembled make possible the questionnaire canvass of transacting parties, which constitutes the fifth activity element. The canvass is entirely a mail procedure. There are three separate mailings (the last by "certified mail"), and response generally exceeds 70 percent, a proportion deemed adequate in a voluntary survey.

In most States, assessed values have no more than a 1-year life. Each year, the assessor necessarily "determines" a new such value for each taxable parcel, nominally at least. This is true even where State law may prescribe an "assessment cycle" (e.g., 6 years in Ohio) that governs the period during which each taxable property must be completely "reassessed," following physical inspection wherever deemed necessary.

The taxable property values survey requires "assessed values" as of the valuation date (specified in State laws) for the year immediately preceding the year of the particular Census of Governments involved.

Only the jurisdictional assessment aggregates canvass (the third activity element) provides "census coverage" of all primary assessing jurisdictions. All other activities of the survey are sample-based.

Administrative aspects.--As noted above, the taxable property values survey depends for feasibility on ready access to any public records deemed pertinent, and on existing and available public and private records and response necessary for obtaining and processing of individual property information.

Examples of data required follow:

<u>Data</u>	<u>Source</u>	<u>Public or confidential</u>
Jurisdiction assessed value aggregates	State department of revenue, of taxation, or State tax commission	Public
Real property ownership details	Local recording office	Public
Real property sales prices	Transacting party (usually grantee, i.e., buyer)	Confidential



<u>Data</u>	<u>Source</u>	<u>Public or confidential</u>
Real property assessed value	Local assessment roll	Public
Property use and other individual parcel characteristics	Local assessment roll, property record card, or transacting party	Public
Amount of taxes billed against property	Tax collector's ledger, or the record	Public

Except for the sales price itself, the basic data for the survey usually are publicly available somewhere, i.e., from the primary record sources suggested above, or from secondary records available within the assessor's office.

The sales price, however, becomes available to the survey only if a transacting party responds. Since response is voluntary, not mandatory, the possibility of inadequate response remains formidable, likely to frustrate publication goals if ratio calculations are impossible.

The survey is the responsibility of the Taxation Branch in the Governments Division of the Bureau of the Census. Subject to the central allocation of responsibility, other organizational units of the Bureau participate in survey planning and execution as the job requires. With specific reference to the 1977 Census, for example, the following summarizes functional allocations, generally effective for the time periods indicated:

<u>Function</u>	<u>Organizational Unit</u> (Division)	<u>Time</u> (Fiscal year)
Survey planning, sample design, forms design, legal research, etc.	Governments <sup>*/</sup>	1975
Training: Preparation of materials, conduct of sessions, etc.	Governments Field	1976-77
Enumeration: Onsite assembly of data	Field Governments	1977
Operations	Field, Governments, Data preparation <sup>**/</sup>	1977-78
Processing and publication	Governments, Data preparation	1978

<sup>\*/</sup> References to "Governments Division" pertain primarily to Taxation Branch.

<sup>\*\*/</sup> Data Preparation Division is located in Jeffersonville, Ind.

Publication of the taxable property values for the 1977 Census of Governments occurred in November 1978. A coal strike that forced a shutdown in Jeffersonville generally is believed to have delayed publication by at least 4 months.

Factors conditioning survey execution and results are associated with data, available resources, and the general public. They include the following (all discussed further below):

1. Local records, the basic source of survey data, exhibit great variability, for example, in content, merit, accessibility, and timeliness.
2. Enumerators necessarily select the sample of real property sales from an unclassified universe (i.e., type of realty cannot be known at time of selection). This is likely to mean too many sales of some types, too few of others.
3. Enumerators can complete local areas most efficiently if work plans remain standard for all. Whenever circumstances require using an additional local file or visiting an additional local office, costs escalate.

Economic aspects.--As suggested above, the major functional components of the survey consist of survey planning, training, enumeration, operations, and processing and publication. None can be completely isolated in terms of cost, because accounting for funds expended follows organizational lines which obscure some functional overlapping. It can be noted, however, from the actual costs of the 1977 survey (see table 10-1) that enumeration, a 1977 responsibility of the Field Division, is the greatest single functional cost, amounting to more than a third of the survey total. Obviously, any alternative that replaces or minimizes onsite manual enumeration rates careful consideration.

In that connection, there is a consensus that computer-assisted enumeration, successful in 1977 in 67 counties and cities and in three States, saved an estimated \$188,000, an amount that exceeds 5 percent of the total survey cost of \$3.4 million. This result instills realistic hope for further saving if the expansion in automated procedures occurs in ways compatible with Census facilities and techniques. Such compatibility arises, of course, in a voluntary framework, since the Bureau can only suggest compatible technical standards for adoption by local governments in the context of mutual benefit.

Central source processing, i.e., multijurisdictional sampling at a central site, has not reached its potential. A major problem here is assuring that the required universe of sales (or other basic data) is indeed available at the central site.

In summary, the Bureau spent \$3.4 million during more than 4-1/4 years to obtain: (1) 110,000 measurable realty sales, out of 210,000 enumerated; (2) a sample of approximately 1.4 million assessed values (each for a parcel) out of approximately 88 million; and (3) to process the data and publish the results. The latter include the finding that taxable property in the



Table 10-1--Actual costs, taxable property values survey, 1977 Census of Governments

Fiscal year ending	Division				Total
	Governments	Field <sup>1/</sup>	Data <sup>2/</sup> preparation	Other <sup>3/</sup>	
	-----Dollars-----				
June 30, 1975	118,499	-	641	2,454	121,596
June 30, 1976	169,653	6,295	5,641	2,325	183,914
September 30, 1976 <sup>4/</sup>	97,502	12,908	14,646	-	125,057
September 30, 1977	480,275	1,170,276	735,629	178	2,386,358
September 30, 1978	435,792	5,042	177,755	-	618,606
Totals	1,301,721	1,194,521	934,312	4,977	3,435,531

<sup>1/</sup> Enumeration of services.

<sup>2/</sup> Input of data collected to data processing system.

<sup>3/</sup> Primarily "computer services."

<sup>4/</sup> Covers 3-month period: July, August, September 1976. Fiscal year start changed to October 1, effective October 1, 1977.

Source: U.S. Bureau of the Census, Governments Division.

United States amounted to \$1,229.1 billion in 1976, an increase of 71 percent and 338.5 percent, respectively, over corresponding totals for 1971 and 1957. There were 88,194,000 parcels of realty in 1976, 55 percent being single-family houses. Twenty years earlier there were 61,158,000 parcels, of which 30 million were single-family houses.<sup>29/</sup>

### The Census of Agriculture

Nature and purpose.--Every fifth year during 1920-78, the Bureau of the Census has taken a Census of Agriculture. The first such census occurred in 1840 as part of the sixth decennial Census of Population. Between 1850 and 1920, the interval between each Census of Agriculture was 10 years.

Only 4 years separate the 1974 Census of Agriculture from the 1978 effort. An interval of the same length will precede the 1982 Census. Timing of this latter census will bring the agriculture effort into confluence with the other economic censuses. Thus, after 1982, each succeeding census will occur during a year ending in a "7" or "2."

The Census reports basically on farm operations likely to involve any one of three alternatives: owned acres, acres rented from others, and acres rented out to others. For Census purposes, the number of farm operators is the same as the number of farms. Presently, at least, the Census of Agriculture is not parcel-oriented.

In late 1973, the Bureau conducted a test survey of assessors' records in six counties to determine the feasibility of using the records instead of, or in addition to, multiple lists as a basis for the Census of Agriculture. Some favorable results from such changes were deemed a reasonable prospect, on the basis of test findings, though the nearness of 1974 Census operations precluded further exploration at the time. One problem encountered is familiar: the uneven quality of local assessors' records. The assessors' parcel approach, however, was deemed to hold significant promise, particularly because an assessor's parcel is a "more meaningful" piece of land than segments created by map subdivision.

For the 1978 Census, the Bureau used an area sample as a supplement to the multiple list approach. This is discussed further below.

Survey activity elements.--Until 1969, the Bureau assigned enumerators to list all farms in a specified geographic area. With the advent of relatively complete name lists, the Bureau began, in 1969, to enumerate by means of a mailout/mailback procedure.

To carry out this task, the Bureau assembles as comprehensive a group of name lists as possible. Extremely important among these are Internal Revenue Service lists, as follows:

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<sup>29/</sup> U.S. Bureau of the Census, 1977 Census of Governments, Taxable Property Values and Assessment/Sales Price Ratios, 1978, Vol. 2, p. 6.



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For the 1978 Census, the Bureau used an area sample as a supplement to the multiple list approach. This is discussed further below.

Survey activity elements.--Until 1969, the Bureau assigned enumerators to list all farms in a specified geographic area. With the advent of relatively complete name lists, the Bureau began, in 1969, to enumerate by means of a mailout/mailback procedure.

To carry out this task, the Bureau assembles as comprehensive a group of name lists as possible. Extremely important among these are Internal Revenue Service lists, as follows:

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<sup>29/</sup> U.S. Bureau of the Census, 1977 Census of Governments, Taxable Property Values and Assessment/Sales Price Ratios, 1978, Vol. 2, p. 6.



<u>Form</u>	<u>Name of list</u>
1040F	Persons filing farm tax returns
1040C	Farm-related businesses
1065	Farm partnerships
1120S	Small farm corporations

In addition to the above, the Bureau uses the file of producers kept by the U.S. Department of Agriculture's Agricultural Stabilization and Conservation Service; the file of farm employees (form 943) of the Social Security Administration; economic census lists of names identified with agriculture; and lists from trade associations and private sources.

For the 1978 Census, the Bureau arrived at its final mailing list via the following basic operations:

1. Creation of a preliminary list of names, using source lists available in March 1978.
2. Survey of selected names and addresses, by farm and ranch identification, from the preliminary list to eliminate nonfarm operators and add tenants and successor farm operators.
3. Creation of the final mailing list in October 1978, incorporating results of the above survey and content of additional lists not previously available.

The lists have serious disadvantages. They contain many duplications and do not assure a complete count. In the 1974 Census, the final list of 12.4 million names became a more compact group of 5.3 million names after "unduplication" procedures. Eventually, the final mail file was even smaller, containing 4.1 million names.

The final 1978 mailing list comprised almost 17 million names and addresses. At this stage, a process of unduplication began, involving computer comparison and clerical review associated with employee identification numbers, social security numbers, truncated surnames, and coded names and addresses.

Unduplication pared the original list to a preliminary mailing list of approximately 6 million names. Then a farm and ranch identification survey of selected portions of the list eliminated many nonfarm operators. This and other screening and refining techniques reduced the list to approximately 4.4 million names, each of which received a questionnaire in January 1979.

Seven additional mailings followed the first where necessary, at 3-week intervals. Telephone contact replaced or supplemented the mail with respect to large operators and a sample of nonrespondents.

Even with the intensive attention to obtaining a complete list, estimated net census farm undercoverage ranged from 8.1 percent of all farms in 1954 to 15 percent in 1969 to 11.5 percent in 1974.<sup>30/</sup> For the latter year, the definition of a census farm was changed. In 1969, places of less than 10 acres in the census year were counted as farms if estimated sales of agricultural products reached a minimum of \$250 for the year.

Five years later, a census farm was defined as "a place on which agricultural operations were conducted at some time during the census year, under the day-to-day control or supervision of one person or partnership, and from which \$1,000 or more of agricultural products were sold or would normally be sold during the Census year."<sup>31/</sup>

For the 1978 Census, the Bureau also estimated the number and characteristics of census farms not included in the above final 1978 list. These estimates did not, however, cover Alaska or Hawaii. The purpose of this area sample activity, also discussed below, was to overcome the undercoverage problem to the greatest extent possible.

Operational aspects, area sample, 1978 Census.--The aim of the 1978 mailing list was to identify farm operators. It was acknowledged, however, that no amount of effort would result in a list including all operators. In fact, an estimated 13 percent of all farm operators would fail to appear on any list. Hence, the 1978 Census, for the first time since 1964, provided for an area sample. In addition, the 1978 area sample was of a different type than the one used in 1964.

The aim was to select a probability sample of all land in areas of less than 2,500 population (1970) and all farm operators living on such land. Accordingly, the sampling frame for the area sample was a list of all enumeration districts from the 1970 Census of Population and Housing, together with their characteristics and maps.<sup>32/</sup>

The sampling unit was a defined geographic area of land, called a segment, and each enumeration district contained one or more. This was an "open segment" approach. A farm was included if the operator lived inside the segment. Size of each sample unit in an area, number of housing units, and number of farms, varied in accordance with assignment of strata. Each stratum, among six, was defined in terms of estimated farm density (ratio of estimated number of farms and number of occupied housing units). The stratification divided the sample units into groups with similar characteristics, in terms of two criteria--geography and agricultural intensity.

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<sup>30/</sup> For further discussion of these points, see "1978 Census of Agriculture--Area Sample Design and Methodology" by David D. Chapman and Charles E. Rogers, internal memorandum within Agriculture Division, Bureau of the Census, August 1978.

<sup>31/</sup> Ibid.; also 1974 Census of Agriculture, General Information: Procedures for Collection, Processing, and Classification, Volume II, Part 1, pp. 5-6.

<sup>32/</sup> The list was constructed by using the Fifth Count (File C) Summary Tapes from the 1970 Census.



Prior to sample selection, the enumeration districts were sorted by county code, census tract, and enumeration district code. Because of the way in which enumeration districts were numbered, the sorting process arranged them in approximate geographic order. As part of the selection process, the expected number of farms in the district was divided by the desired number per segment for each particular stratum. An array was created for subsequent selection, using a random start. Sample selection identified the segment number and the enumeration district number, but did not identify physical boundaries.

Data collection consisted of enumeration, quality control, and evaluation. Approximately 1,700 enumerators visited approximately 6,400 segments between mid-October and mid-November 1978 to obtain the necessary data. In addition to the enumerators, the staff included 215 crew leaders and 27 supervisors. They used a questionnaire similar in form and content to the mail-out questionnaire.

Quality control consisted of rigorous checking procedures prior to and during enumeration.

Evaluation included a postenumeration survey, begun in December 1978.

Economic aspects.--Major cost components of the Census of Agriculture include the following: (1) planning, direction, and review; (2) pretests; (3) data collection; (4) data processing; (5) publications; and (6) sampling, statistical standards, and evaluation.

The actual cost of the 1974 Census reached almost \$25 million, as shown in table 10-2. Though estimates for 1978 (see table 10-3) indicated a total twice as large, there were reasons for the increase, in addition to general price level changes. The 1978 figure includes "follow-on" surveys not done in 1974, and it also includes the area sample activity. It also should be noted that a delay in funding the 1974 Census shortened the planning stage for that effort by almost a year. Funds eventually made available sufficed for a more limited program than had been envisioned originally.

For the 1978 Census, the area sample alone cost an estimated \$8 million. The follow-on surveys added about \$5 to \$7.5 million.

As the tables indicate, data collection and data processing accounted for a large proportion of the cost. In both instances, most of the expenditure took place in the year following the nominal year of the census.

#### Farm Realty Surveys, Department of Agriculture

Nature and purpose.--The U.S. Department of Agriculture conducts a farm and rural land market survey each March and October. In addition, the Department surveys farm real estate values each February and November. Data from these surveys are reported in an annual publication called Farm Real Estate Market Developments, the latest of which is publication CD-84, published by

Table 10-2--Actual costs, 1974 Census of Agriculture  
(Thousands of dollars)

	<u>FY 74</u>	<u>FY 75</u>	<u>FY 76</u>	<u>FY TQ*</u>	<u>FY 77</u>	<u>FY 78</u>	<u>FY 79</u>	<u>Total</u>
Planning, direction and review	977	1,603	2,238	705	601	170	-	6,294
Pretests	74	-	-	-	-	-	-	74
Data collection	1,462	4,221	1,465	-	-	-	-	7,148
Data processing	166	2,352	4,739	1,186	1,218	520	-	10,181
Publications	-	-	340	4	382	290	75	1,091
Sampling, stat. stand. and eval.	-	34	43	30	47	16	-	170
Total	2,679	8,210	8,825	1,925	2,248	996	75	24,958

Table 10-3--Estimated costs, 1978 Census of Agriculture  
(Thousands of dollars)

	<u>FY 76</u>	<u>FY TQ*</u>	<u>FY 77</u>	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>	<u>FY 81</u>	<u>Total</u>
Planning, direction and review	12	72	1,909	2,850	3,250	2,706	1,665	12,464
Pretests	-	-	89	210	-	-	-	299
Data collection	-	-	115	7,446	10,691	1,228	75	19,555
Data processing	-	-	450	1,216	7,564	4,239	1,175	14,644
Publications	-	-	-	-	200	1,543	408	2,151
Sampling, stat. stand. and eval.	-	-	-	4	588	589	265	1,446
Total	12	72	2,563	11,726	22,293	10,305	3,588	50,559

\*Transition quarter, covering 3 month period: July, August, September 1976. Fiscal year start changed to October 1, effective October 1, 1977.



the Department in August 1979. Information contained therein includes indexes of average value per acre, number of farms and amount of land so used, California land values, number of farm real estate transfers, market participant data, farm real estate debt and average interest rates, nonfarm realty market influences, and cash rents.

Activity elements.--For the Farm and Rural Land Market Survey, the Department of Agriculture sends a questionnaire each March and October to a nationwide sample of lenders, brokers, and a more limited number of county officials. Responses come from 4,000 to 4,500 of the recipients. In the survey of March 1979, there was included for the first time a question on foreign investment in U.S. farmland. Answers came from 4,040 respondents. About 10 percent of the respondents reported knowledge of actual sales to foreigners.

For the Farm Real Estate Values Survey, USDA sends questionnaires to a nationwide sample consisting of 18,000 to 22,000 farmers and ranchers. They provide information that supports calculation of farmland value index numbers. They also supply aggregates on farm debt and interest rates.

Economic aspects.--The cost of the Farm and Rural Land Market Survey is approximately \$48,000 annually. There is no disaggregation available.

Costs of the Farm Real Estate Value Survey are not available separately. They form part of costs incurred for USDA's Monthly Farm Report.

### Resource Economics Survey

Nature and purpose.--The 1978 Resource Economics Survey (RES) is a series of data collection surveys carried out by the Economics, Statistics, and Cooperatives Service (ESCS), U.S. Department of Agriculture. Each survey is designed to obtain information about land resources in the United States. RES is one in a series of Annual Economic Surveys. Plans call for carrying out the RES every 4 years.

The RES is a nationwide survey, constructed to obtain information about all privately owned land resources in the United States. While the survey includes both urban and rural land, the sample design results in a rural owner "hit rate" greater than their proportion to all owners.

The RES is a multipurpose survey, since it provides data on three major areas: (1) a land use and capabilities inventory, (2) a survey of land-ownership, and (3) a series of surveys concerning new resource investments and the removal of previous resource investments.

The RES is also a cooperative effort by agencies in USDA. The Soil Conservation Service (SCS) carried out the 1977 phase of their National Resources Inventories (NRI). ESCS collected data for both the Landownership Survey (LOS), and the follow-on surveys concerned with changes in resource investments. Within ESCS, the Statistics Unit carried out the data collection

and processing, and the Economics Unit is responsible for the data analysis and reporting functions.

The RES is designed to provide data for a wide variety of research and analysis efforts by the U.S. Department of Agriculture that are concerned with land resources. For instance, in addition to landownership, the RES provides data on investments in land improvements, land use practices affecting environmental quality, the quality of land in different types of use, and better data on specific uses of land. Because the RES was designed for multiple uses and relies on owner holdings as the basic data unit, it contains many of the basic attributes outlined for the network MPLDS model in chapter 7.

Survey activity elements.--The RES is based on a sample list prepared in the following manner: In the early 1950's, a stratified random sample of the nation's land area was constructed for use in conducting the 1958 Conservation Needs Inventory (CNI). The original CNI sample was a joint effort of SCS and Iowa State, Cornell, and Texas A&M statistical laboratories. A subsample of the 1958 CNI sample designed by the Iowa State University Statistical Laboratory was used by SCS to collect data for the 1977 NRI. The NRI used about one-third of the sample originally included in the CNI sample. Every county in the United States was included. Stratification of the land area was on the basis of units generally 160 acres in size. Within each of the units selected, SCS collected data on three randomly selected points to meet the NRI needs. SCS provided ESCS with the name and address of the owner of the first point in every unit included in the NRI. There were almost 70,000 points included in the list covered in the RES. Of these, approximately 12,000 fell on land owned by Federal, State, or local governments or held in trust for Indian tribes. The remaining 57,000 points in private ownership comprised the ESCS list sample frame for the LOS.

To minimize respondent burden and survey cost, a strategy to obtain core data on characteristics of owners and land owned was adopted as part of the LOS. Also, the LOS included a series of lead questions about land uses, land resource investments, and changes in uses and investments that had occurred in the last 3 years. The purpose of these lead questions was to provide a list for mailing one or more follow-on questionnaires. By limiting the requests for detailed information to these preselected respondents, the overall burden on respondents was reduced.

From the 57,000 list frame, about 37,000 responses (65 percent) were received with usable data. The remaining 20,000 were inaccessible (even with enumerative follow-up), non-responses (with no follow-up), points for which no name and address were available, and refusals.

Over 35,000 positive responses were obtained to screening questions on the LOS. A subsampling procedure was used to reduce the follow-on sample to a total of 22,500. About 19,000 usable responses were received for the follow-on surveys.

Because of the survey design, weights can be used to expand data to full population equivalents. Expanded LOS data will be tabulated for (1) each



State (except Alaska), (2) 10 Farm Production Regions, (3) 20 Land Resource Regions, and (4) 17 Water Resource Regions. Follow-on survey data will not be tabulated on a State basis.

Technical aspects.--Among technical aspects which deserve attention are data items included, survey design, and survey logistics. Data items covered in the LOS include two major categories: first, items concerning the land, and second, items concerning the owner of the land. Nineteen questions were asked regarding land characteristics. These questions included the form of ownership, date of purchase or sale, market values, types of leases, property rights and easements (owned and transferred), and location of the land by county.

In addition, nine questions regarding owner characteristics were contained on the LOS questionnaire. These included questions on principal occupation, age, sex, race, income, citizenship, and dependence on the property.

The survey design involved a variety of data collection techniques. Included were mail, telephone, and personal enumeration methods. Of the 37,000 responses to the LOS, over 13,000 were obtained by mail, 15,500 by telephone, and slightly over 8,000 were obtained by personal enumeration. Data collection attempts were made in a mail, telephone, personal interview order, to minimize the survey costs; that is, by using the lowest cost technique first.

The LOS and the related follow-on surveys are both based on a list of land-owners, rather than a list of land parcels. While this basis is not as preferable as the parcel-based survey MPLDS, the results will serve a number of land policy area data needs. Also, as pointed out in chapter 7, the ownership focus could be converted relatively easily to the parcel base suggested for Scenario IV.

The cooperation among and roles of the various U.S. Department of Agriculture agencies involved in the RES are worthy of note since they make up an on-going, widespread agency that could be used to implement Scenario IV. SCS, which carried out the NRI and provided the list for the owners of 70,000 points, has offices in all States and most counties. The data collection for the LOS and the follow-ons was handled by the Statistics Unit of ESCS. This unit too has offices in most States and a cadre of enumerators in each State. Therefore, in addition to their major role in survey design, the Statistics Unit has capability and experience in using mail, telephone, and personal enumerator techniques. All three of these approaches were used to good advantage to obtain relatively high response rates in the RES.

The Economics and Statistics Units at both the Washington office and State office locations participated in an extensive pretest and regional schools for training of enumerators. Regional schools were held for the purpose of training personnel from each of the State Statistical Offices. Pretests for the LOS, which resulted in the redesign of questions and questionnaires to obtain better results, were held in Alabama, Idaho, Iowa, New York, and Texas. It should also be noted that the resources of the Iowa

State University Statistical Laboratory, designers of the original 1958 CNI sample, were available to assist in the sample design. Additional pretests were conducted for the follow-ons.

Administrative aspects.--A number of factors are related to the administrative feasibility of the RES. These factors include voluntary cooperation of owners in the sample, data collection network availability, and data tabulation, analysis, and reporting capabilities.

Unlike the mandatory responses to the Census surveys, the RES must rely on voluntary cooperation of respondents to provide the basic data. The voluntary nature of RES impacted on the survey design (e.g., extensive use of follow-on surveys to reduce respondent burden) and approaches to data collection (i.e., use of a combination of mail, telephone, and personal enumeration techniques). Also, the availability of a widespread comprehensive network of field offices was valuable in providing access to high quality enumerators for both telephone and personal interviews. Also, the knowledge of Statistical Unit personnel in State field offices proved invaluable, both in the mechanics of data collection and in editing, checking, and follow-up on questionnaires.

Data tabulation of RES results required substantial resources in the Statistics Unit of ESCS. Therefore, adequate manpower and financial resources were required to provide initial tabulations for statistical summary publications.

In addition to the statistical summary publications, in-depth analytical reports are being prepared by Economics Unit personnel. Much of this analytical work is being carried out by Economics Unit personnel located at universities in various field locations. Cooperative agreements with these universities provide necessary computing facilities. The field locations also permit detailed analysis of particular problems by personnel and at locations that are best equipped and most knowledgeable in a particular area.

Finally, a number of additional factors effect RES administrative feasibility. Some will require further study based on final results of the 1978 survey and plans for comparable surveys in subsequent years. These include:

1. Improvement in sample list frame (e.g., names and addresses were not obtained for about 4 percent of the sample points in 1978). Possible conversion of the sample base to a parcel basis (e.g., as in Scenario IV) and use of title records would be one approach to possible improvement.
2. It will probably not be feasible to use the same sample in subsequent surveys. The sample could possibly be rotated to another group of points in the CNI sample (since only one-third of the available points were used in 1978). This approach would reduce respondent burden for any particular one-third of the sample.
3. Continued efforts are also needed to facilitate the RES with other data collection, tabulation, analysis, and reporting efforts of the various U.S. Department of Agriculture agencies involved. This is necessary in order to



minimize conflicts with other responsibilities and in order to provide results of the RES in a timely manner. Additional resources in terms of staff and computing facilities may be required in this regard.

Economic feasibility.--About \$1.5 million in data collection costs were incurred for the RES. These costs do not include the NRI data collection carried out by SCS. However, the relative high cost of RES data collection (i.e., about \$33 for each of the 37,000 usable responses in the LOS and \$18 per usable response for the follow-on) is due largely to the complex nature of the survey (i.e., 10 follow-on surveys, in addition to the LOS), and the comprehensive, extensive follow-up procedures used to obtain satisfactory response rates. Nearly 65 percent of the usable LOS responses were obtained by telephone and personal enumeration, the latter accounting for almost two-thirds of the total cost. Also, costs for the 1978 RES may be higher than for subsequent RES, since the 1978 survey included costs for first-time design and planning efforts.

The 1978 RES, including data collection and some tabulation of the LOS and follow-ons, is costing about \$2.7 million. These costs appear more than justified by the more powerful analysis that the survey is designed to provide. These costs are indeed relatively small when compared to the impacts of the policy decisions that will draw on the results of the RES.

#### Feasibility Enhancement

Each of the surveys reviewed above encounters problems, and for each they are likely to involve data, enumeration, response, processing, or some combination thereof. In the usual instance, there is a cost or achievement consequence involved. What creates a problem will yield to solution, either in doing something wanted at additional cost or in not doing something because there are no data or money available. Cost effectiveness conditions most judgments about coverage and execution, even where feasibility as such is not an issue.

The problems which receive attention below relate not only to past performance but also to future potential. If they run afoul of feasibility in the short run, they nevertheless stimulate long-term change.

#### Problems and Opportunities--Taxable Property Values Survey

There are about 88 million parcels of realty in the United States, about 8 to 9 million of which sell each year. Data concerning their physical attributes, location, value, ownership, and transfer are in the custody of thousands of local recording and assessing officials around the country. The environment is replete with variety, extending from scope to accuracy and back. The Census Bureau's litany of problems includes the following:

1. The universe of realty sales is unclassified. An enumerator counting through a typical grantor-grantee index compiles a list of sales, complete with transacting parties, address of property, date of sale, and (relatively rarely) sales price. Information disclosing the kind of property is

not available at this point. This means the enumerator may well assemble a sample too abundant in residential sales, or too sparse in commercial and industrial sales. If the sample design compensates for this expected composition, the excess of abundant types is likely to be a costly plus for the survey.

2. Records in recording and assessing offices range in quality and completeness from excellent to absent. Legal provisions in the 50 States and the District of Columbia prescribe certain requirements relating to public notice, property transfer, and tax assessment, but only in some States do they specify standards for parcel identification, land use coding, record format, or other aspects of the public records in question. Even when such prescription occurs, the implementation remains a local responsibility, to be taken as seriously as the local commitment of resources (fiscal and personal) allows.

In practical terms, of course, the records kept by registers and recorders of deeds are at least available as public records, since the function of the office is essentially that of public notice. The particular format of a grantor-grantee index, however, can and does vary. Similarly, what deeds, mortgages, and other instruments associated with property transfer actually contain can vary substantially among the States, sometimes as to legal description and often as to sales price.

In assessing offices, there is ready access to the assessment roll, a public record. This means that property description, last known owner, and assessed values (always total, sometimes land and improvement components as well) are available. These assessed values, it should be noted, constitute the parcel-oriented universe which generates the sample used by the Bureau for estimating distributions of realty by use categories.

When the assessment roll does not reveal property use, however, enumerators necessarily turn to property appraisal files or other secondary records, and enumeration costs quickly mount. So very occasionally do complications, when these latter records have somehow acquired statute-buttressed confidentiality as assessors' work products.

3. Despite some problems, computer-assisted enumeration already has proven itself. Computer-assisted enumeration refers to cooperative arrangements between the Bureau and local governments, specifically their assessing, recording, and/or data processing organizations. In a typical arrangement, the assessor authorizes the local data processing facility to provide the Bureau with a tape of an entire local assessment roll, or of a sample of that roll selected by the local computer in accordance with Bureau specifications. Subsequent processing occurs by means of Bureau computer facilities.

Two problems often thwart such arrangements: use code access and convertibility and intrajurisdictional parcel location identification. Either can easily exasperate parties not pledged to equanimity. Local use codes commonly have many more classifications than the seven the Bureau uses and convertibility may be difficult. Moreover, local codes on the master tape file may show zoned rather than actual use, the latter a Bureau requirement.



Locating each assessed value inside or outside a central city is important to the Bureau, but often a matter of small moment to the assessor. Hence, the master file may not provide such locator data for each parcel.

4. Central source sampling has yet to reach its maximum potential. This technique builds on a disposition, even a tradition, of the States involved to conduct ratio studies at regular intervals.

If, as part of the completion of such studies, the State assembles a universe of real property sales at the capitol or other central location, the Bureau may effect an agreement with the State to select the sales sample, for each county in its jurisdictional sample, at the central site. This could make unnecessary any visits to the localities thus sampled.

Only if a "complete" universe is available centrally can this plan work. This simple requirement has, in fact, prevented implementation in some States (e.g., Arizona, Minnesota), because certain screening techniques had occurred prior to delivery of sales records to the State official.

5. The Bureau publishes effective property tax rates for each city of 50,000 or more population, and for the balance, or noncentral city portion of the surrounding county, whenever the sales sample for the property use category involved is sufficient to justify the rate calculation. (An effective rate is the total amount of tax billed against a property, expressed as a percentage of sales price.)

In those circumstances, such as in Texas, where three or even more assessing and collecting jurisdictions may have an effect on a single property, it becomes prohibitively costly to obtain the entire amount of the tax bill.

#### Problems and Opportunities--Census of Agriculture

The aim of the Census is to reach every farm operator in the United States, excluding none. This constitutes a challenge of some magnitude, given the complexity of agriculture today, the wide variations in size of farm operations, the multisite environment that characterizes many such, and the restive mood of farmers. In terms of data, the difficulties can be summarized as follows:

1. As things stand presently, the data for the Census come from the farm operators themselves. The formidable 28 section, 6-page, 10-inch by 14-inch questionnaire becomes a streamlined void if recipients ignore it. Their frequent disposition in these days of malaise has been to do just that. Many farmers have expressed a dislike for surveys, and seem unable or unwilling to nudge aside the nagging feeling that such things are "used against us." Such feelings are strong today, not only among farmers but among the entire public.

The Bureau has dealt with this in a total responsive approach, extending from survey design through operations and publishing of results. The questionnaire actually used survived severe scrutiny at various stages in

its planning and design. Each group of questions was examined for relevance and designed for response in the most convenient way possible. A color overlay highlights answer spaces for easy access by the respondent.

In the operational phase, persistence set in, carefully unfettered, however, by any coercion. After the initial contact, as many as seven additional mailouts occurred, each muting the potentially counterproductive reminder on the form that survey response is mandatory.

The 1978 Census mailout achieved 86 to 87 percent response, among the approximately 4.5 million report forms originally mailed. Nonrespondents received a short-form mailout, plus, in some instances, telephone contacts, in a final effort to reach everyone.

2. Evaluation of the area sample, begun in December 1978 with a postenumeration survey, continues at this writing. Results thus far arouse cautious optimism among Bureau officials, who nevertheless deem premature any definitive conclusions because overall processing of census data assembled via mailout and enumeration is still in progress. One phase scrutinized closely was the matching operation.

Since a primary objective of the area sample has been to estimate the number and characteristics of farms not on the comprehensive mailing list, each completed questionnaire, plus the names of each nonrespondent and "not home" have been matched to the mailing list and then classified as "matched" or "not matched." All respondents "matched" require no additional contact in follow-up programs. Respondents enumerated as part of the area sample were given adhesive labels for attachment to any mailout questionnaire subsequently received, reciting the fact of enumeration.

After matching, each questionnaire enumerated as part of the area sample was assigned to a State and county for tabulation. Those not matched were assigned to a State and then identified by a "pseudo" county code for tabulation. These latter are used in the estimation of number and characteristics of farms in the State, not on the mailing list. In published tables, such estimates are identified as "not allocated to any County."

3. The Census of Agriculture has thus far had little success in any effective use of local records, including those of assessors and recorders. A basic reason is the "farm operator" basis of the census, something which local records apparently do not accommodate easily. A farm operator often works parcels owned, in part or entirely, and parcels rented, in part or entirely, as one overall operation. Local records do identify individual parcels but do not reveal the boundaries of an "operation" that overlaps all or parts of individual parcels, some or all of which may be alternately owned or rented by the operator.

The conceptual integrity of the parcel as the basic component in local records, however, remains a tantalizing attraction, at least within any methodology that would accommodate the operator concept at the same time. One possible inference from the apparent conflict in bases (operator vs. parcel) and the negative results achieved in tests already conducted is that the existential quality of local records, not any conceptual deficiency, may describe the problem. Existing systems that are incomplete,



indifferently maintained, or haphazardly classified do not lend themselves to the kinds of aggregation or disaggregation (into "operator units," for example) that the more sophisticated systems among them may already make possible.

### Problems and Opportunities--USDA Surveys

Major difficulties attending data assembled for these surveys relate to source and scope. The data on sales prices and component values for land, crops, and building components represent opinions of the respondents. To be sure, the opinions are an "educated" variety. Respondents for the farm and rural land market value survey include lenders, farm real estate brokers, and a few county officials. There is a valid presumption that they know more about the market than the average member of the public. The same is true of the farmers and ranchers who constitute the sample for the farm real estate value survey.

However, most of the responses to this survey are opinions, not reports of actual transactions. The one exception to this general rule is the brokers who are asked to report on five individual sales (i.e., on ESCS form 15). Even with these data, it is not possible to link these reports with other data to verify them through public records. Therefore, a certain subjectivity in the results must be conceded.

Even though individual parcels as such are not identified in the USDA Farm Realty Surveys,, the responses relate to ownership transfers, not necessarily to farm operating units. One consequence is that they tend to be smaller than an average farm operation. The proportions of transfers reported which consist of complete farm operating units cannot be inferred from survey results. This is another illustration of the conflict existing between ownership and operator basis in agricultural statistics.

Clearly, the closest approximation of the survey MPLDS is the Resource Economics Survey (RES). If problems of switching to an ownership parcel base (rather than the present landowner base) can be solved, an operating survey MPLDS could become a reality, and in the very near future.

### Prospects for Greater Feasibility With the Survey MPLDS

Existing surveys contribute a valuable realism to any consideration of the survey MPLDS: they take the world of data as it is. Specifications necessarily accommodate to what can be done. Feasibility, including its cost-sensitive implications, conditions plans and accomplishments.

The survey MPLDS goes beyond the realism of the day to suggest what can occur, given some changes, incremental or otherwise, in what now exists. Perhaps the bridge between the two, what now exists and what practical change can set in place, is the conceptual area constrained only by rational risk. Within that conceptual area, three elements among those associated with the survey MPLDS can be identified. They are multiechelon compatibility among records, survey specification compatibility, and cooperation among governments. Each is briefly discussed below.

## Multiechelon Records Compatibility

At first glance, even possibility defies acceptance. There are, after all, 13,500 primary assessing jurisdictions, more than 3,500 recording jurisdictions, and almost 80,000 local governments of all types, in addition to the 50 States and multifaceted "unity" of the Federal Government. What manner of compatibility can be diffusive enough and integral enough, at the same time, to effect substantial change? Is it practical even to contemplate?

Contrast somehow reassures. Compared with the unity of a survey MPLDS system, the present reality almost as easily defies acceptance. A frequent adjective to describe the variations is "incredible." Who would believe so diverse a mosaic exists? Somehow it "happened," it's own kind of free expression, and in many ways justifiable as such.

The compatibility sought is not confining, either. It can arise incrementally, and it must occur voluntarily; there is no harsh unanimity imposed. To the extent that it does develop, it improves the efficiency of individual surveys. Similar records for each of 20 counties in 6 States, for example, enhance the prospects of a survey using them. Records that make aggregation possible and data units convertible contribute to survey success. Two computer installations with compatible record layouts increase the utility of each. In terms of the taxable property values survey, such compatibility converts quickly to costs saved. For the Census of Agriculture, such compatibility could raise basic questions regarding survey design.

## Survey Specification Compatibility

Once the survey MPLDS is in place, subsequent individual surveys adapt to records compatibility. Details of survey design routinely reflect or reject what compatibility within the system makes possible or rules out. Methodology complements data resources, and the two expand the potential of future surveys. Disparate bases, such as owner and operator, yield to procedures for conversion that the system of stored data can easily manage. Aggregation and disaggregation, by parcel or other geographic unit, become accepted elements of more survey specifications. Functional overlapping among local governmental units itself gives way to modified settings for any desired autonomy, or yields data capable of cross-comparison.

## Cooperation Among Governments

This is the pearl of great price, a simple ingredient often as resistant to discovery as to use. It happens or founders in two directions--vertically and horizontally. Each variety already exists--here in a Federal, State, local manifestation, there in a combination of counties or school districts. Even one local government can demonstrate its potency, as when planning, assessing, recording, and engineering departments join forces in communal land data efforts.

The survey MPLDS, which cannot really exist without cooperation, contributes to its fulfillment and expansion.



## Summary

The second part of this chapter deals with the technical, economic, and administrative feasibility of Scenario IV, a survey MPLDS. The analysis relies heavily on a review of four ongoing surveys, each of which contains several elements that can be used as prototypes for a survey MPLDS.

The foregoing review clearly indicates that a network MPLDS is technically feasible. The several ongoing surveys reviewed are evidence of such feasibility. The major technical question is the sample size that will be required. Determination of sample size must await a final decision as to specific data to be included, since incidence and variance of data have major impacts on sample size needed.

The analysis also concludes that the survey MPLDS is administratively feasible. For example, in general terms, Federal departments, such as Commerce and Agriculture, have exhibited the capability of carrying out multipurpose surveys. In specific terms, several agencies have considerable experience in collecting and compiling land-related data. The Agriculture and Governments Division of the Bureau of the Census and the Economics, Statistics, and Cooperatives Service of the U.S. Department of Agriculture are examples of such agencies. The Governments Division is experienced particularly in dealing with ownership parcel land data surveys.

In general terms, the analysis concludes that the survey MPLDS is economically feasible. That is, land data for multiple purposes can be collected at a reasonable cost, as evidenced by the prototype systems that are operating currently. For example, it can be reported that the 1977 taxable property values survey cost \$3.4 million--to obtain data, perform the necessary calculations, and publish results concerning 110,000 measurable sales and 88 million taxable parcels of real property, and also to publish effective tax rates for 358 cities and 134 "balance-of-county" areas. Total costs of a similar amount are expected for USDA's RES. While the initial RES sample is smaller than the Taxable Property Value Survey, the addition of the follow-on surveys make it quite comparable.

It also is clear that the costs of conducting single-purpose surveys are escalating rapidly. For enumeration, the Census of Governments cost per enumerator hour rose from \$11 to \$18 between 1972 and 1977. Therefore, additional ways to hold down costs of such ongoing surveys likely will be sought. Survey administrators likely will be faced increasingly with the question: "Is it worth it?"

One approach for economically justifying a particular way of carrying out a survey is via the cost-savings that can be realized, compared with one or more other approaches.

For example, cost-savings attributable to computer-assisted as against manual enumeration in the Census of Governments Taxable Property Survey have been estimated at \$50,000 for the 1972 survey and \$188,000 for the 1977 survey. Twenty-six local jurisdictions were affected in 1972. In 1977, computer-assisted enumeration was successful in 3 States and 67 local jurisdictions.

The economic analysis (in this chapter and chapter 7) also provides insights into two variables that will have a major impact on costs of the survey MPLDS. As noted in regard to technical feasibility, incidence (expected rate of occurrence) and variance have a marked impact on the size of sample required. The sample size, in turn, directly affects the cost of the survey.

Until the exact content of a survey is determined, precise cost information cannot be estimated. The economic analysis does consider a range of rates of occurrences and variances that probably are applicable for a low rate of occurrence item such as ownership of land by aliens. At an estimated cost of \$40 per questionnaire, survey costs for such items could range from \$20 million to \$640 million.<sup>33/</sup> For example, for an item with an incidence of 0.5 percent and a variance of 2, a sample of 1.5 million, at a cost of about \$60 million, would be needed. Similarly, for an incidence of 0.1 percent and a variance of 1, a sample of 3.0 million, at a cost of about \$120 million, would be needed. (These rates and variances are in the ranges of low-frequency occurrence data such as foreign land ownership in the United States.)

An even more difficult economic analysis task is placing cost figures, such as those above, in a benefit context. One way of doing so is through the use of the technique of cost-benefit analysis. This means, in an adaptation of Mishan's definition,<sup>34/</sup> determining which among competing alternatives for available funds shall be undertaken, after considering the relative returns to society (benefits) likely to flow from each. There is need in the analysis to quantify both costs and benefits, and this often brings about the undoing, or the abandonment, of the analysis. It is easier, after all, to assert that benefits cannot be quantified and then move on, than to attempt the reasonable approximations.

With ongoing surveys so institutionally vital as those discussed above, reality would in fact excuse avoiding the subject. The surveys have not been the subject of cost-benefit analysis, though each undergoes intensive, extended preexecution planning, continuing supervisory review, and extended evaluation procedures. No money spent to plan and complete them is spent haphazardly, budgeting is rigorous, and adherence to amounts budgeted, or less, is a fundamental operational posture.

The benefits of the survey are in fact difficult to quantify. How worthwhile is it to show year-old assessed value aggregates and distributions, and de facto assessment levels and uniformity measures, for individual counties and cities around the country? Very worthwhile indeed, but how valuable in money terms?

What money value can be placed on statistics about the number of farms, their sizes, crop output, and value in each fifth year? The consensus already exists: such statistics are very valuable, but attaching a price tag is something else.

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<sup>33/</sup> See chapter 7 for details.

<sup>34/</sup> E.J. Mishan, Economics for Social Decisions, Praeger, New York, 1973, pp. 11-13.



Given that a benefit-cost analysis of ongoing surveys is very difficult, similar efforts for conceptual models are even more formidable. That is, the model (such as the survey MPLDS) often is defined less precisely than an ongoing system. This lack of relative precision makes the calculation of benefits and costs doubly difficult.

Due to these difficulties, coupled with the extremely short time frame available for the study, a benefit-cost analysis was not possible. However, results of the current study suggest that further considerations of the benefit-cost approach might be useful, particularly if further detailed design work is authorized for the network MPLDS.

Various such possible methodologies exist, one of which is detailed by Leyland for urban information systems.<sup>35/</sup> He suggests preliminary attention to project objectives, scope, necessary details, and costs, and then an attempt at benefit quantification. The projected systems undergoing his analysis fall into eight groups:

- |                            |                                   |
|----------------------------|-----------------------------------|
| 1. Bibliographic reporting | 5. Data series reporting          |
| 2. Social reporting        | 6. Program planning and budgeting |
| 3. Management information  | 7. Planning information           |
| 4. Computer modeling       | 8. Research information           |

Of the eight, data series reporting, the fifth, comes closest to the Federal surveys likely to be part of a survey MPLDS. In his scheme, Leyland assigns weights to cost and benefit elements of each system. For data series reporting systems, he comes up with cost weights of 129 and benefits of 120, as follows:<sup>36/</sup>

<u>Costs</u>		129
Setup costs	37	
Other costs	92	
Operating costs	27	
Political/business costs	65	
<u>Benefits</u>		120
Functional benefits	24	
Other	96	
Technical operations	30	
Political operations	38	
Decisionmaking	28	

There are aspects of this methodology that may be open to further refinement. For instance, the weighting system could be challenged, if only Leyland's weights were used. We believe, however, that this approach may be useful in further analysis of MPLDS. On that basis, it is offered for further consideration.

<sup>35/</sup> Supra, note 28, pp. 92-117.

<sup>36/</sup> See supra note 28, figures 1 through 8, for details.

## CONCLUSIONS

The technical, economic, and administrative feasibility analysis in this chapter attempts to answer three questions about each of the two MPLDS alternatives: (1) Can it be done (i.e., is it possible technically)? (2) If so, at what cost? (3) How would the system operate (in terms of on-going administration)?

The feasibility analysis concludes:

(1) Both Scenarios III and IV are technically feasible; that is, the hardware and techniques are presently available to implement either of the MPLDS described in chapter 7.

(2) There is wide variation in the costs between Scenarios III and IV. However, it is noted that the capabilities of the two MPLDS also vary widely.

(3) Both MPLDS are administratively feasible. Here too, there is a wide variation in the administrative approaches needed to implement and operate the two systems. One common factor is the need for considerable input by the Federal Government; that is, in terms of guidelines, standards, technical assistance, and cost-sharing for Scenario III; and in terms of coordination of numerous Federal agencies and the operation of the actual survey for Scenario IV.

The analysis concludes that both Scenarios III and IV are technically feasible. When a specific approach for implementation is selected by policymakers, an additional, detailed technical analysis is recommended.

While both Scenarios III and IV are multipurpose, they do not necessarily serve the same purposes. For instance, Scenario III can be expected to serve most land data needs of local and State governments. However, if intelligence data for each individual parcel are not required as a system output, then Scenario IV is particularly strong in providing data for national, regional, and State levels.

Use of Scenario IV requires more foresight, regarding policy analysis that will be requested; that is, each data item needed must be specified for collection in the survey that provides the data for the survey MPLDS. Therefore, Scenario IV is at a disadvantage to Scenario III in addressing new, unforeseen problems; and providing data for previous time periods in order to carry out a time series analysis.

In general, the evaluation of the technical feasibility of the two MPLDS models revolves around the issues of amount and specificity of data, currency of data, and accessibility of the data. For instance, the present title record system in the U.S. can be fairly characterized as an awkward, expensive, archaic system. However, title records are technically satisfactory as to amount, specificity, and currency of data. Therefore, the major technical change needed in title records is to improve their accessibility. This could be accomplished by the adoption of a uniform parcel index system. Such systems are available and used in a few jurisdictions. Widespread use of these index systems is necessary if a network MPLDS is to be successfully implemented.



In regard to specific policy questions, such as foreign landownership, the MPLDS approaches will not necessarily reveal such ownership more completely than single purpose systems. However, the MPLDS, particularly Scenario III, will provide for a more thorough evaluation and analysis of these data (e.g., comparison with domestic classes of owners, analysis by type of land use, location variables, etc.).

Because of its intelligence data capability, Scenario III is preferable for accurately monitoring the status of alien land ownership over a period of time. To maintain a running inventory of foreign land ownership (or any similar group of owners), it is necessary that data on ownership transfers be related to a specific parcel (e.g., by a parcel index). This capability will make it possible, for instance, to reveal whether two transfers, at different times, involve the same or different parcels.

Scenario IV could be implemented in a relatively short time. Scenario III would take much longer to implement nationwide, due to the need to make changes in nearly all of the 3,000-plus counties in the United States. However, once in operation, Scenario III would have a much faster response time to a specific data request.

There is also a considerable difference between the two MPLDS as to the kinds of questions that can be answered and the kinds of judgments that can be made. For instance, Scenario III can provide data about specific ownership parcels. These parcel data also can be displayed graphically on a hardcopy map or on a computer terminal screen. Since the survey MPLDS is a statistical system, it is not capable of providing data for parcels or other small geographic areas. However, Scenario IV can provide data on and answer questions about individual States and combinations thereof.

Economic evaluation of the two MPLDS models is difficult due to several factors, including the complexity of the models themselves, the wide range of conditions that exist throughout the country, and the lack of complete information on the extent of changes that are necessary to implement the models.

In spite of these difficulties, cost estimates for the various components necessary to implement Scenario III with level B capabilities were prepared. (The level B system is the minimum deemed necessary to provide data about local ownership patterns. For instance, the level B system includes a computerized assessor file, a parcel map system, and data about citizenship of owners.) At the national level, the average per parcel cost estimate is about \$40. Naturally, there is a wide variation in such costs in different parts of the country. These differences are due to such variations as rural versus urban parcels, topography of the area, and region of the country. Therefore implementation costs in a given county might average less than \$10 or over \$50 per parcel.

The above cost estimates are gross costs for implementation. To include the current status of land record systems in the estimates, a net cost was calculated for each State. The net cost estimates in effect credited each State with the components for Scenario III, level B, that were already in place or up to standard.

Scenario III is clearly the more expensive MPLDS. Estimates of gross costs to bring all local jurisdictions up to the level B standard totalled \$3.4 billion. After allowing credits for work already completed, the net cost is estimated at \$1.2 billion.

Scenario IV has a considerably lower cost, mostly related to the size of sample needed for the survey. Cost estimates for this approach considered likely ranges of incidence (e.g., of alien land ownership) and variance, and also assumed that reliability to at least provide State estimates would be necessary. Costs for Scenario IV range from \$20 million to \$640 million, and most likely would be in the range \$60 million to \$120 million for a one-time survey.

It should be noted that these cost comparisons are not strictly comparable, since Scenario III costs include development of a local information system in each county and Scenario IV costs are for carrying out a one-time survey. Because it would be necessary to periodically repeat the survey, the cost advantage of Scenario IV is overstated.

Scenario III would be extremely costly if considered in terms of cost per foreign land owner, cost per acre owned by a foreigner, or percent of all real estate owned by foreigners. However, it is important that the many beneficiaries of the multipurpose systems be recognized. These benefits will accrue to such functions as title recording and value assessment when the systems are implemented in each county. Scenario III also has a decided advantage because of the wide range of ongoing local government uses it will serve, at the same or less cost than is now incurred by the many agencies now using separate data systems for each office.

Costs of not adopting an MPLDS are difficult to document. However, these costs can safely be assumed to be significant, due to inefficiencies in data handling and duplication of effort that exist in the current system. The current annual cost of \$15 per capita for maintenance of government land data records in Wisconsin is a case in point.

Scenario III has an advantage in that implementation could take place incrementally, which would help reduce the cost impact in any one budget period. Because of the nature of the survey MPLDS, most costs would be incurred in the budget period in which the data were collected. Also, as noted above, these data collection costs would reoccur each time the survey was repeated. There would be costs for maintenance of the data systems in Scenario III. However, these costs likely would not exceed costs currently incurred for comparable activities in land record systems. Therefore, while implementation costs for Scenario III are several times larger than for Scenario IV, operating costs, once the systems are in place probably are comparable.

The discussion of administrative feasibility addressed a number of issues. For example, Scenario III depends in large part on the reformation of local government land record systems. This will require the coordination of public records that are now widely scattered and/or not relatable.

From an administrative point of view, the assessor's office is a logical starting point for the implementation of Scenario III. Once the network



MPLDS is operational to handle assessor office functions, additional functions can be added gradually (e.g., title recording functions). In this manner the complete system can be developed by incremental implementation.

For successful implementation, much depends on leadership from the Federal level, regardless of which MPLDS is adopted. For the network system, guidelines, specifications, and technical assistance from the Federal Government will likely be necessary. Similarly, for the survey MPLDS, Federal responsibilities will include coordination of data needs and survey activities of several Federal agencies as well as the administration of the MPLDS survey itself.

For either MPLDS, administrative decisions will be required concerning a number of issues. These include:

- (1) Access to the system and the data it contains (e.g., who, under what conditions?).
- (2) Who is to be charged with responsibility of providing data (e.g., seller of land to foreigner, agent, recording official)?
- (3) Uses of the data (what uses of the data base will be considered legitimate?).

Given the small extent (low incidence) of foreign land ownership, the network MPLDS seems to offer the best long-run approach; that is, this system can provide the needed data on foreign land ownership (on an intelligence basis if desired) and, at the same time, insure the improvement of land record systems generally. The technical, economic, and administrative analysis concludes that such MPLDS are feasible and would provide a number of beneficial results including:

- (1) More and better information on which to base analysis.
- (2) More accessible information.
- (3) Increased information security.
- (4) Elimination of duplicative costs (thereby stabilizing or possibly lowering costs).
- (5) The possibility of shared financing of information systems, which makes a sophisticated system affordable.
- (6) A general improvement in the provision of government services at the Federal, State, and local levels.

## APPENDIX A

### Selected Studies of Title Recording, Property Transfers, Transfer Costs, and Land Record System Costs in the United States

#### Characteristics of Title Recording in the United States

The North American system of land tenure, although directly descended in many respects from English practice, is unique. Land title matters historically have been regulated by the States in the United States, but the major features of the system which emerged are remarkably uniform across the Nation. The central aspect of this system is that only evidence of interest in land is recorded when property is transferred, which makes the State a passive rather than an active participant in the process. This "legal notice" function of recording is fulfilled simply by submitting an instrument of transfer to the local registry of deeds. Such a submission protects the grantee by preventing any third parties to whom the grantor might subsequently purport to convey the land from claiming that they had no notice of the prior conveyance to the grantee. The recorded document generally will name the grantee and the grantor, and give a legal description of the property. A copy of the document is filed by sequence number at the registry, and the names of the parties are recorded in separate indexes along with the date of transaction. In most localities, this fulfills the recording requirements. Although few States require additional data concerning real estate transactions, many have given localities discretionary authority to record additional facts, such as parcel identifiers, sale price, and addresses of grantees.

The extent to which such various pieces of information actually enter the public record is, therefore, quite variable. The extent of this variability is indicated in exhibit 10A-1, which shows the percentages of U.S. deed-recording jurisdictions which (sometimes, always, or never) record specified facts concerning land transactions, with the data categories ranked by prevalence of recordation.<sup>37/</sup>

#### Parcel Indexing

Of greatest significance to the functioning of a land data system is clear identification of each parcel of land throughout its history of ownership. Most local systems do not organize recorded deeds by any sort of parcel identifier. As exhibit 10A-1 shows, 55 to 73 percent of jurisdictions fail to note a parcel identifier when transfers are recorded. One implication of this is, that while one might rely on deed recorders to detect and report certain categories of transfers, it would be impossible to maintain

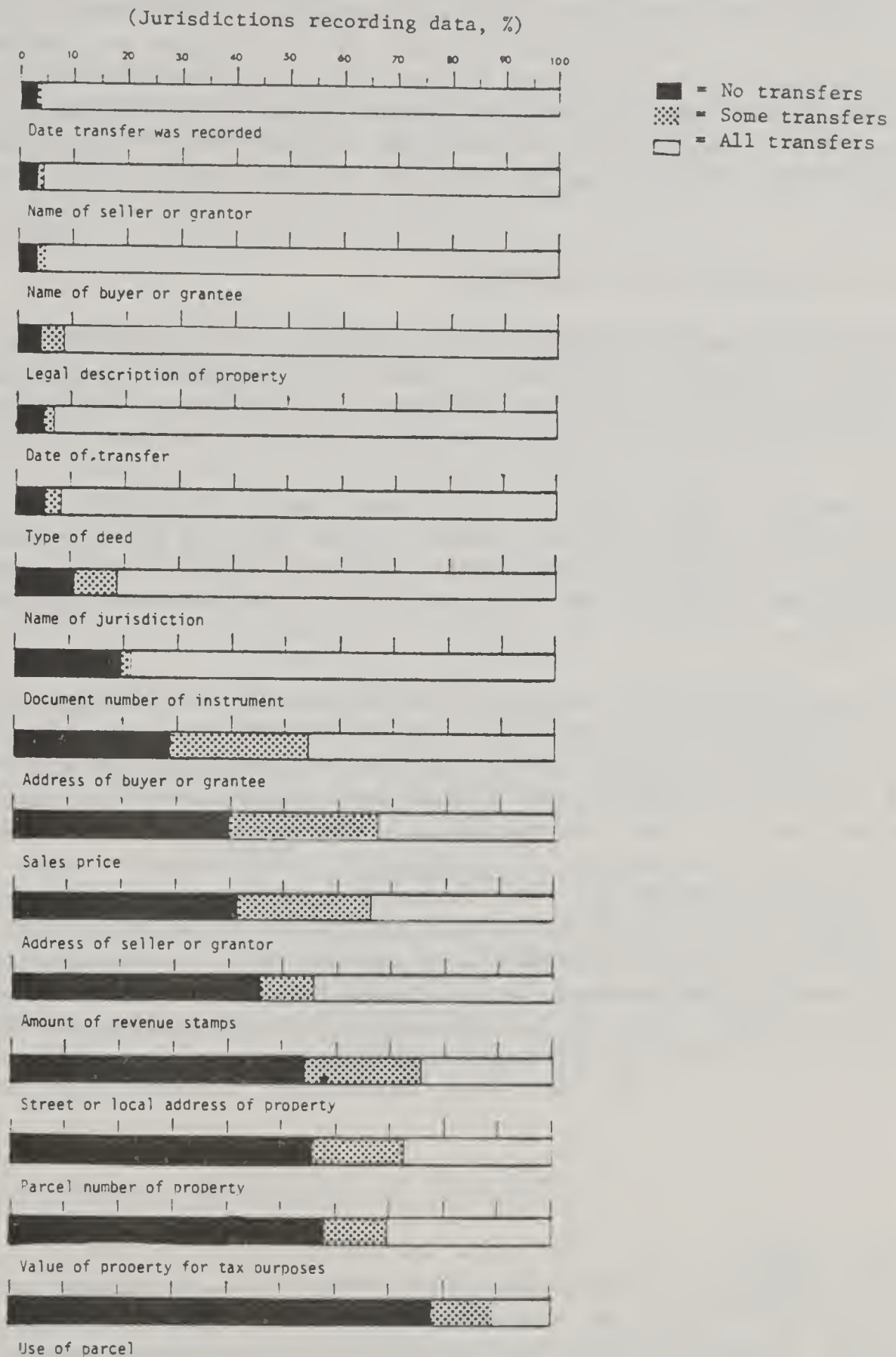
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<sup>37/</sup> Land Title Recording in the United States: A Statistical Summary, U.S. Department of Agriculture and U.S. Bureau of the Census, Special Study No. 67, 1974, p. 19.



## Exhibit 10A-1

### Real Property Transfer Information Recorded by Data Category



Source: Land Title Recording in the United States: A Statistical Summary, p.19.

an inventory of the land involved. In the absence of a standard set of parcel identifiers, the land transfer process is administratively separated from the land regulation, inventory, and taxation processes.

The use of parcel identifiers and indexes undoubtedly is on the increase, but as of the 1969 survey, only 762 of the 2,364 jurisdictions reporting (32 percent) indicated that they used parcel indexes. This practice varies by region to a considerable degree.<sup>38/</sup> As might be guessed (from knowledge of the Public Lands Survey System), the Midwest (North Central Census Region) shows the highest incidence of parcel indexing (51 percent of jurisdictions). Comparable proportions for the West, South, and Northeast Census Regions are 28, 21, and 18 percent, respectively.

#### Costs of Real Estate Transfers

Many of the potential benefits of MPLDS are related to savings that would accrue to ongoing functions. One of the ongoing functions where substantial benefits could accrue concerns the transfer of real estate and the recording processes associated with these transfers.

Data on the number and costs of real estate transfers in the United States are sparse. For instance, there is no ongoing data series reporting the number of transfers each year. However, despite this sparsity, a number of studies and reports are available that provide some general benchmarks in this area.

For example, a joint study by the Bureau of the Census and the U.S. Department of Agriculture estimated there were 8.1 million real property transfers in 1969.<sup>39/</sup> A similar 1972 estimate from private sources indicated that 6.8 million single-family houses were transferred in that year.<sup>40/</sup> The Forbes article also estimated that the private costs of researching and consummating exchanges of residential real property added up to more than \$7 billion in 1972.<sup>41/</sup> The Federal study of land title record systems estimated the total cost of operating local recording offices in 1969 amounted to nearly \$148 million, or about \$18 per transfer.<sup>42/</sup> While this is a substantial amount, it is dwarfed by the annual \$7 billion in private transfer costs (for title abstraction, title insurance, appraisal, brokerage fees, etc.) that are estimated to have been paid in 1972.

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<sup>38/</sup> Ibid.

<sup>39/</sup> Supra note 37, p. 11. The 1976 estimate, based on the same procedure as used in 1969, is 8.5 million transfers. See U.S. Bureau of the Census, Taxable Property Values and Assessment/Sales Price Ratios, 1977 Census of Governments, Volume 2, pp. 15, 60, and 87.

<sup>40/</sup> "Why It Costs So Much to Buy and Sell a House," Forbes, October 1972, p. 35.

<sup>41/</sup> Ibid.

<sup>42/</sup> Supra note 37, p. 12.



In 1971, there were an estimated 83 million taxable real estate parcels in the United States.<sup>43/</sup> By 1976, the number of parcels had increased to over 88 million, an increase of 15 percent in the previous 10 years.<sup>44/</sup> The turnover rate (i.e., proportion of all parcels sold) typically has been 8 to 10 percent annually. Therefore, this substantial amount of transfer activity clearly is taxing the title record system, much of which depends on principles, procedures, and technology that have existed since before the Revolutionary War.

Why does American land conveyancing cost \$7 billion per year in fees for title search, title insurance, and other closing costs? Failure to use parcel identifiers in deed recording, as well as poor indexing of deeds and simply the number of legal decisions and documents which might affect the transfer of ownership of a parcel may be significant contributors to the problem.

The title insurance industry arose to cope with the multitude of uncertainties that go along with buying and selling real property, and title plants generally have more complete and better organized archives than do local courthouses. These institutions serve a real need and do it effectively, but they exist only because public recordkeeping generally has not evolved in a manner that uses modern technology to handle the large workload in the most efficient manner possible. By mining public archives and selling the information back to clients piecewise, the conveyancing function is facilitated at little public expense (except for portions of such items as recording office costs that the transacting parties often do not bear). However, the expense is repeated for all subsequent transfers of the same parcel, and the information available in the public record is not enhanced. Also, the procedures followed in conveyancing often are the consequence of custom rather than statutes (built around the skills of lawyers and the perceived needs of lending institutions), and could be modernized in a number of respects without substantial legislation or expense.

For instance, the simple act of annotating a deed or a mortgage with the assessor's parcel number would be of great value at a later date. This could be done by an attorney or deed registry personnel and apparently has begun as a haphazard, unofficial practice in a number of localities. While such expedients hardly constitute an MPLDS (nor are all parcel indexes in use necessarily adequate to the task of automated data retrieval), at least they forge links between current and "ideal" land records.

#### Land Record System Costs in Wisconsin

An informative case study of the disarray of statewide land information and mapping programs was generated in Wisconsin through support of the U.S. Department of the Interior under its RALI (Resources and Land Investigation) program.<sup>45/</sup> This study attempted to catalog all public land record activity (in cities, counties, and the State government, plus certain Federal

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<sup>43/</sup> Supra note 37, p. 2.

<sup>44/</sup> Supra note 39, p. 7.

<sup>45/</sup> Larsen et al., Land Records: The Cost to the Citizen to Maintain the Present Land Information Base, a Case Study of Wisconsin (Madison: Department of Administration, 1978).

and private utility activities) to assess the extent, cost, quality, and usefulness of land records in that State.

Among the findings were:

- \* In 1976, land record activity cost Wisconsin taxpayers \$78.7 million, or \$17.03 per State resident.

- \* About half of this expense was generated by local government, about 15 percent by the State, 20 percent by the Federal Government, and another 15 percent by utilities.

- \* Among State agencies doing countywide mapping, overlapping functions appeared in mapping public lands (four agencies), agricultural lands (two agencies), and erosion and pollution (three agencies). Aerial photography was performed by 3 agencies, and 6 were involved in setting data collection standards (out of a total of 14 agencies surveyed).

- \* A comparable amount of overlap was found in the Wisconsin mapping activities of nine Federal agencies, particularly in aerial photography, which eight of the nine presently conduct.

- \* In many instances, the agencies were unaware of the overlaps or had such divergent standards and coverages that integration, collaboration, or sharing would not be possible. At least one instance was noted in which one State agency denied permission to another to use its land records.

- \* Certain State and Federal mapping programs were found to be duplicative in content, yet incompatible in their purposes. Such parallelism was the rule, and it was exceptional for Federal cartographic products or data to be put to use by State or local agencies. Exceptions included use of Federal aerial photographs for making tax maps and widespread use of SCS soil maps and mapping services.

- \* Responsibility for maintaining survey monuments and documents is delegated to the State by the Federal Government, and to the counties by the State. In turn, many counties retain private firms to do this work. The result is very incomplete records and highly variable performance of these tasks.

- \* Twenty-six out of 59 counties responding to a survey of tax map status indicated that no tax maps were available. Thirty-three counties had tax maps, and 21 had aerial photography (two-thirds of which originated with the U.S. Department of Agriculture's Agricultural Stabilization and Conservation Service). Nine different mapping scales were found to be in use, the most prevalent being 1" = 400', but varying from 1" = 50' to 1" = 660'. Little cooperation and no State guidance characterized these programs.

- \* In a review of 19 land record products, 8 potential problem areas were evaluated to see if actual problems existed. Out of 152 possible problems (19 x 8), 72 (47 percent) were judged to actually be problems associated with these products. Most prevalent were accessibility constraints (lack of knowledge as to where relevant data are stored) and institutional constraints (over- and underlapping jurisdictions, each with special requirements, standards, and practices).



Conclusions of the Wisconsin case study included:

- \* Large-scale base maps should be available on a uniform regional or state-wide basis. This is expensive but will eliminate redundant mapping efforts.
- \* With a standardized geographic base, a variety of land data can be referenced with a common coordinate system of known properties and accuracy.
- \* Standards for data also should be developed, and limitations of data accuracy always must be acknowledged when data are used.
- \* Land information should be accessible to citizens and should be as decentralized as possible. Users of land data should be able to obtain information about the subjects of interest to them, in formats useful to them, in their own localities.
- \* Electronic data processing will facilitate all the above goals and should be introduced gradually at all administrative levels, with access to the information network available to the general public (possibly for a fee).

Exhibit 10A-2

Example of Real Property Transfer Affidavit

STATE OF \_\_\_\_\_ DEPARTMENT OF \_\_\_\_\_

REPORT OF PURCHASE OF INTEREST IN REAL PROPERTY  
(Draft - March 28, 1979)

A completed copy of this form must be submitted to the local recording office with any deed or lease of real property for 7 years or more, and also with the record of transfer of any type of interest to a nonresident alien or a corporation with some part of the controlling interests owned by nonresident aliens.

FAILURE TO SUBMIT THIS FORM IN THE LATTER CASE MAY SUBJECT THE GRANTEE TO A FINE OF UP TO (one-fourth?) OF THE FAIR MARKET VALUE OF THE PROPERTY OR INTEREST TRANSFERRED.

- PLEASE TYPE OR PRINT CLEARLY -

1. Address of property:  
Number and street \_\_\_\_\_  
City or town \_\_\_\_\_
2. Permanent land parcel index number, \_\_\_\_\_  
or numbers \_\_\_\_\_
3. Land area in acres (approximate) \_\_\_\_\_
4. Name of grantor (seller) \_\_\_\_\_
5. Name of grantee (buyer) \_\_\_\_\_
6. Address of grantee:  
Number and street \_\_\_\_\_  
City and State \_\_\_\_\_  
Zip code, or foreign country \_\_\_\_\_
7. If grantee is a corporation,  
where incorporated? \_\_\_\_\_  
Corporate home address \_\_\_\_\_
8. Is the grantee a nonresident alien, or a corporation with some part of the controlling interests owned or partly owned by nonresident aliens? Yes No  
☐ ☐
9. Is this an interest in only one residential property for a single family and not part of a larger transaction involving other properties? ☐ ☐

NOTE: IF 8 IS ANSWERED "YES" AND 9 "NO", THEN THE GRANTEE IS REQUIRED TO FILE FORM \_\_\_\_\_ (number), AS REQUIRED BY (citation of Federal act).

10. Is this agricultural land (includes timber production)? ☐ ☐
11. Is this a transfer of property between relatives? ☐ ☐
12. Is this a taking or a forced sale? ☐ ☐
13. Type of interest transferred: ☐ Ownership; ☐ Lease;  
☐ Mortgage; ☐ Other
14. Date of transfer month date year  
\_\_\_\_\_
15. Sale price (total value of consideration): \$ \_\_\_\_\_  
or annual payments for lease: \$ \_\_\_\_\_

Under penalty of perjury, I attest that the above information is correct to the best of my knowledge.

Signature(s) of grantee \_\_\_\_\_ Date signed \_\_\_\_\_

Witness \_\_\_\_\_



## APPENDIX B

### The Geographic Data System of Lane County, Oreg.

Some of the features which might be present in a more advanced land data system can be presented best by discussing one of the more successful such systems--the Geographic Data System (GDS) of Lane County, Oreg.<sup>46/</sup> The county itself has an area of 4,610 square miles, a population of 252,500, some 115,000 real estate parcels, and two major cities: Eugene and Springfield.

Eugene, in particular, has experienced substantial growth in recent years; in fact, its population has doubled since 1960. This rapid growth has created acute planning and management problems, and led to several questions that are considered very important if the growth of Eugene is to be orderly and not disruptive, and if the county as a whole is to retain its character as a "liveable" area. These questions are: What is the optimum location for a new firehouse or other public facility? What is an appropriate zoning policy for Eugene? What changes (e.g., in various components of the sewage system) will be required to accommodate growth over the next 20 years?

Various governmental agencies within Lane County felt that such questions could not be answered reliably without some marshaling, updating, and analyzing of data normally collected in dozens of different formats by several agencies. These perceived needs eventually led to the creation of the GDS by the Eugene Planning Department, the Lane Council of Governments, and various other governmental entities within the county.<sup>47/</sup> Physically, the GDS resides in the computer facility maintained by Lane County's Regional Information System (RIS).<sup>48/</sup> The hardware making up the system includes:

...an IBM System/370 Model 158, attached processor, running under the IBM MVS operating system. Approximately 250 terminals are connected to the RIS hardware, and this network is controlled by a user-written telecommunications system (TCS). These terminals allow

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<sup>46/</sup> For general descriptions of this system, see IBM Corp., "Geographic Data System Aids Land Use Planning" (IBM Application Brief GK20-1148-0, 1978); Mahan, Spivac, & Swank, Plotting Land Use in Oregon, Datamation, November 1978, p. 155.

<sup>47/</sup> The need to accommodate rapid growth was the motivating factor behind another land data system as well--the Urban Development Information System (UDIS) of Fairfax County, Va. See generally, J. Hysom et al., A Handbook for Creating an Urban Development Information System (NTIS Doc. No. PB-238-815, 1974).

<sup>48/</sup> "County officials estimate 4% of the RIS batch resources...is required for GDS," W.M. Wadsworth, Integrated Public Mapping Systems: A State-of-the-Art Approach, Harvard Library of Computer Graphics, 1979 Mapping Collection, Cambridge: Harvard University Laboratory for Computer Graphics, Vol. 3.

diverse users in many locations to utilize the computer system and access the geographic data base. Additional equipment attached to the system that facilitates the display and use of geographic data includes a drum plotter for creation of three-color maps and two interactive graphics terminals and graphics tablets. The Eugene Planning Department utilizes two IBM 3270 visual display terminals and one graphics terminal and tablet for data entry, inquiry, and display purposes. The second graphics terminal and graphics tablet is installed in Lane County's Environmental Management Department.<sup>49/</sup>

The GDS system is described as a "geoprocessing" system, which is to say that each datum entered into the system is tagged with an identifier which represents some geographic entity to which the datum pertains. This entity may be either a polygon (e.g., a parcel or a school district), a line (e.g., a street), or a point (e.g., a coordinate representing the center of a manhole cover). Thus, it is important to note that not all data present and utilized in the GDS are parcel oriented. Data for school districts or data on soil types pertain to polygons which are neither parcels nor necessarily aggregations of parcels.

However, the principal file in the GDS data base is the parcel file. This file consists of one record for each of the parcels represented in the system--currently some 80 percent of the county's 115,000 parcels.<sup>50/</sup> (All of the 60,000 parcels in the Eugene/Springfield metropolitan area are now in the data base). The file contains a variety of information for each parcel--tax lot number, land use code, area, centroid coordinates, perimeter coordinates, etc.<sup>51/</sup> The primary parcel identifier for most purposes is the tax lot number--a 13-digit code structured as follows:

<u>XX</u>	<u>XX</u>	<u>XX</u>	<u>X</u>	<u>X</u>	<u>XXXXX</u>
Section	Township	Range	1/4	1/16	Parcel
#	#	#	Section	Section	#

Other parameters in each parcel record also can be used as parcel identifiers--for example, the parcel centroid coordinate.

Existing subfiles and derivative files contain subsets of the data in the parcel file and are structured so as to facilitate preparation of certain special-purpose reports and analyses. One particularly important such file is the address file:

<sup>49/</sup> IBM Application Brief, supra note 46.

<sup>50/</sup> For purposes of the GDS, entities such as rivers and streets are represented as long skinny parcels. Thus, the complete set of parcels forms a mosaic of the entire county.

<sup>51/</sup> Information on deeds pertaining to each parcel currently is being entered into the GDS on a day-forward basis.



The Address File provides a standardized set of site addresses in Lane County, containing one record for each address. These records are maintained in an address sorted order by city, street, type, direction, and house number. Each record also contains the Oregon State Plan Coordinate point of the address, the tax lot number of the parcel with which the address is associated, the land use at the address [, etc.]. The same information that is used to update the Parcel File is used to keep the file current.

Primarily a reference file, it can be used interactively through a display terminal or it can be practised in a batch mode. A clerk can quickly validate an address or a planner can find the tax lot or land use for a specific lot by interrogating the file from an on-line display terminal.<sup>52/</sup>

Other, similarly structured files containing data records pertain to such nonparcel polygons as zoning districts. Polygon-oriented data files (including the parcel file) include data on the digitized perimeters of the set of polygons. Nonpolygon-oriented files include a file of street intersections and a file of manholes (these are point-data files).

GDS software permits overlays to be prepared for two different sets of polygons, allowing particular points to be assigned to the specific polygons of a given set in which those points lie. These particular functions are handled by the Map Model System, one of the general software packages maintained by GDS. The system is described as follows:

The Map Model System, developed at the Univ. of Oregon Bureau of Governmental Research and Service, provides all basic computer mapping functions (digitizing, editing, combining, overlaying, and plotting) as a series of compatible batch programs. As use of the Geographic Data System became more interactive, portions of the Map Model System such as digitizing and editing were no longer used. Other sections have been rewritten by Eugene and the Lane Council of Governments to tailor them to current Geographic Data System needs. Map Model now provides the basic overlay capabilities and plotter-drawn maps when permanent maps are desired....

A problem that arises frequently in manipulating geographic information is how to assign data items or land parcels to larger areas of districts. For example, how many residences are there in a given school attendance area? The technique of assigning items to a given area is called geocoding.

In the Map Model System, there is a program for overlaying two polygon files to produce a geocoded file. A parcel cut by a district boundary becomes two parcels in the new field. While precise, this process is cumbersome. Matching 100,000 parcels against 100 districts literally could take all day, even with a

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<sup>52/</sup> Mahan et al., supra note 46, p. 157.

highspeed computer. It was decided that for almost all applications, it is sufficient to consider a parcel to be a point (namely, its centroid). A parcel cut by a boundary is then forced into one district or the other. An efficient algorithm was developed by the City of Eugene for point in polygon geocoding. The program also provides for selecting on the basis of geographic area by simply deleting records not geocoded from the output file.<sup>53/</sup>

Other general-purpose software maintained with GDS includes CAP (COBOL Architect Program), a report generation package for "nontechnical users," a version of SPSS (a commercial statistical analysis program package), and UNIMATCH, a Census Bureau program which matches records in different data files on the basis of street address or tax lot number. Special-purpose programs, such as a fire station locator model, also have been written. Outputs from the system come in such forms as tables, reports, interactive question-and-answer sessions on remote CRT terminals, and, of course, annotated maps.

County officials have identified a number of advantages associated with the use of GDS. These are discussed in some detail in the IBM Applications Brief cited above and include:

- \* Ability to make more informed planning decisions.
- \* Ability to respond rapidly to citizen queries pertaining to particular parcels or blocks.
- \* Inexpensive, rapid updating of maps and other elements of the data base.
- \* Ability to prepare special-purpose displays for presentations and reports.
- \* Ability to perform sophisticated analyses (such as are performed by Lane's fire station locator model) quickly and easily.
- \* Facilitation of routine reporting and administrative tasks.

Typical applications of the GDS have included preparation of maps pointing out "hot spots" for real estate sales; selection of a solid waste transfer station site; county employee matching for carpooling purposes; and preparation of voting district poll books.<sup>54/</sup> It is easy to imagine a long list of other potential applications.

The Lane County GDS has an annual staffing budget of \$77,575 (63 person-months). Of this, 38 person-months go toward file maintenance and 2 person-months go to software maintenance, with the residual used for such

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<sup>53/</sup> Mahan et al., supra note 46, p. 159.

<sup>54/</sup> Compare the discussion of the applications of Fairfax County's UDIS in Hysom et al., supra note 47, pp. 16-17, 26-30.



functions as development and data analysis. The \$77,575 includes only the costs borne together by the consortium of governmental agencies managing GDS. Much other development work is done separately by the various constituent agencies. About \$31,000 of the central costs are borne by the city of Eugene, about \$10,000 by the city of Springfield, and about \$36,000 by Lane County. Some additional revenue is received by charging the public for preparing maps on request.<sup>55/</sup>

The costs of setting up the system were about \$100,000 plus 14 person-years of labor costs.<sup>56/</sup> These costs represent the 80 percent of the county which has been digitized so far, and work out to about \$3.34 per parcel.<sup>57/</sup> It is important to note that these costs do not include costs of preparing base maps. The maps used in the creation of GDS previously had been prepared by the Lane County Department of Assessment and Taxation.

The Lane County system creation costs might be compared with costs incurred in creating other land data systems, as shown in table 10B-1. They also may be compared with Moyer's estimates of MPLDS creation costs shown in table 10B-2.

Administration of the Lane GDS is decentralized, with maintenance and development carried out by all user groups. In exhibit 10B-1, a memorandum of understanding, circulated to GDS participants, outlines the scope of activities to be performed. Not all activities mentioned are necessarily performed; for instance, "application: software development" may consist of small modifications of programs acquired elsewhere. The Map-Model software is an example of such acquisitions, and even if that package is not efficient to operate (most map overlay operations are very time-consuming to compute), a great deal of expense was saved by not developing map overlay software in-house.

As described above, the Lane County experience with its MPLDS generally has been good. Of course, the reader should not lose sight of the fact that under different circumstances--less of a felt need for an MPLDS, difficulties in arranging interagency cooperation, capricious reductions in funding on the part of an unsympathetic legislature--a MPLDS might be less successful.

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<sup>55/</sup> The data in this paragraph were taken from Wadsworth, supra note 48, pp. 18-19.

<sup>56/</sup> Sheila Mahan, Lane County Regional Information Systems Department, personal communication.

<sup>57/</sup> Compare the estimate of \$2.65 per parcel in Wadsworth, supra note 48, p. 25.

Table 10B-1

<u>System</u>	<u>Cost per parcel</u>	<u>Comments</u>
	(Dollars)	
Maritime Provinces, LRIS	19.25	From Wadsworth, p. 25. Includes remapping costs
Hennepin County, Minn.	2.16	From Wadsworth, p. 25. Excludes remapping costs
Forsyth County, LRIS	18.21	Includes remapping costs. Personal communication, Forsyth County Director of Data Processing

Table 10B-2

<u>Costs to consider for MPLDS</u>			
<u>Activity</u>	<u>Cost per parcel</u>		
	(Dollars)		
	<u>Min.</u>	<u>Max.</u>	<u>Typical</u>
Surveying	2	27	8
Base mapping	-	-	2
Parcel mapping	-	-	1
Parcel numbering	0.10	0.20	0.12
Parcel indexing	-	-	1
Master file development	5	10	7.5
Master file software	2	5	3.5

Source: D. Moyer, An Economic Analysis of the Land Title Record System, Ph.D. dissertation, University of Wisconsin-Madison, 1977, p. 520.



Geographic Data System, Cooperative Project Agreement

I. Detailed Work Activities

The following list of work activities are those that will be supported by the agencies involved in this cooperative project agreement. The budget to support the activities follows the list.

A. Maintenance and update of the parcel file. If the parcel file is to be of maximum value, it must be updated consistently and accurately. That process is already in operation at L-COG. The update process has two primary inputs. All building activity (permits, occupancy permits, demolitions, etc.) from the three building departments, which are collected monthly, and all changes to the assessor's maps, which are published twice a year. There are also many ambiguities and conflicts that must be researched and resolved. Frequently there are special land uses and surveys that provide information that is used to verify and update the file. It would be undesirable to update from more than one agency because differences in the use of codes, techniques, and timing would occur. A significant economy can be achieved by continued support of that centralized activity.

1. Collection, validation, insertion of building permits.
2. Collection, digitizing, insertion of changes to A&T maps.
3. Collection, digitizing, insertion of new subdivisions.
4. Create and process edit and consistency listings: Incorrect land uses, vacant land use with improved value, nonvacant land use with no improved value, tax lots on A&T file, area of each section approximately 640 acres, etc.
5. Collect, compare special land uses and studies, as appropriate.
6. Improve update procedure.

A major weakness of the Geographic Data System is that it is between one and two years behind the present time. This occurs because the parcel file is updated from Assessment and Taxation maps, which are usually a year behind. This weakness will be corrected by digitizing subdivisions and partitions as they are recorded rather than waiting for A&T to map them and assign taxlot numbers. This change will complement the plans to improve the linkages between Records and A&T. It is consistent with the overall development plan detailed in the grant proposal that was submitted to HUD. The preliminary schedule to accommodate transition to the new update system follows:

(Continued)

Exhibit 10B-1 (Continued)

January 1, 1977 file	Completed August, 1978
January 1, 1978 file	Completed by May, 1979
January 1, 1979 file	Completed by November, 1979
January 1, 1980 file	Completed by April, 1980

- B. Maintenance of boundary files. Maintain and update all boundary files. These include city limits, zoning, zip codes, census tracts, etc. This update is simplified by the fact that L-COG already receives notification of most changes through its map room.
1. Collect and digitize changes.
  2. Prepare and digitize new boundary files, as required.
- C. Maintenance and update of county-wide address file. Closely related to the update of the parcel file because the primary source of new addresses is building permit data.
1. Collect, verify, enter new addresses.
  2. Perform umpire role resolving inconsistencies and conflicts.
  3. Executive ADLIB maintenance programs (reorgs).
  4. Program and correct edit listings: Street name consistency lists, comparison by tax lot with parcel file and A&T files, complete missing fields such as census tract, tax lot, land use.
- D. Maintenance of geographic software and procedures. Programs and procedures require changes to correspond with changes in hardware, system software, data storage, data relationships, user requests, etc.
1. Maintain existing software including map model, geocoding programs, etc.
  2. Maintain procedures.
- E. Development of new system software. As more applications are developed, new hardware acquired, and more data interrelated, new software is needed to provide efficient utilization of geographic data.
1. Graphics terminal software.
    - a. Displays, including plotting
    - b. Digitizing function
    - c. Edit and update capability
  2. On-line parcel file for on-line update as time permits (CLONE).

(Continued)



Exhibit 10B-1 (Continued)

3. Matching utilities (e.g., UNIMATCH, CEMAIL).

F. Development of new applications software as time permits.

G. Data extraction, manipulation, and analysis.

1. Provide tables, summaries, plots for participating agencies. This includes statistical analysis, relationships to demographic data, employment data, etc.

2. Creation of CAPTAPE.

3. Maintenance of census data, including GBF/DIME files.

H. Coordination.

1. Monthly progress reports on the project to all participants.

2. Focal point for information, referral, communication of common interest to make the data system accessible and efficient.

3. Plan general and technical education.

I. Documentation.

1. Existing data.

2. Geographic data inventory.

3. Existing procedures and examples.

4. Existing software and examples.

J. Extension of the data system.

1. Utilization of DMS data base capability.

2. Major system interfaces, e.g., A&T, AIRS, records.

3. Inclusion or service to other users, e.g., EWEB, LRAPA, CHSS, School Districts, LTD, records, etc.

4. Assist development of long-range plan for geographic data processing.

5. LEPAS - display police activity.

6. Extend file to include all of Lane County.

7. Countywide intersection file.

(Continued)

Exhibit 10B-1 (Continued)

8. Improve update procedure to allow comparison with 1980 Census results.

The 1980 Census will provide a significant opportunity to improve information. As described earlier, the Geographic Data System should be updated to provide the most accurate comparison possible with the 1980 Census data. At least two important reasons make this activity essential:

- 1) The Geographic Data System will be used to verify Census counts. Accurate Census counts are imperative to insure maximum receipts of resources that are allocated by population.
- 2) Existing data and local administrative records must be related as accurately as possible to Census counts to improve estimation of Census variables between Censuses.



## APPENDIX C

### Computer-Assisted Mapping System: Oregon State Department of Revenue

#### Background

The Mapping Unit of the Oregon Department of Revenue is responsible for the production and maintenance of county assessment maps. The purposes of the Computer-Assisted Mapping System (CAMS) are to reduce the cost of providing mapping services and improve mapping quality. CAMS incorporates legal property descriptions from deeds and geodetic control data derived from surveys, thus utilizing the most basic data available to property mapping. Photogrammetry is rarely used in CAMS.

The Department of Revenue has been providing mapping services since the 1930's. Robert Mead, the Mapping Unit Manager, has been involved in the cartographic process since 1955. Because of his concerns about the quality of maps the Unit was producing, Mead has: (1) spent 8 years producing a manual of mapping standards for county cartographers; and (2) worked toward establishing and/or strengthening cartographic education at the university level. He was one of the first to recognize the advantages of using mylar instead of linen for making maps.

The planning and system justification stages of the CAMS project began in 1975. The system justification stage included the preparation of cost-benefit analyses which were submitted to the Oregon State legislature to receive funding. After several delivery delays, the new equipment was installed in September 1977.

#### Hardware

The Unit purchased equipment as an operational package from the CALMA Corporation. The equipment consists of the following:

One Data General Nova 2 minicomputer with operating system, Fortran IV, and graphics software packages (\$13,000).

One Tektronix 4014 Cathode Ray Tube (CRT) storage display unit with a 15-inch by 11-inch screen, 4096 addressible points, 4096 by 3100 display points, and alphanumeric keyboard with 20 function keys which allows for 96 ASCII character codes (\$15,000).

One ASR Decwriter terminal and console unit, standard keyboard, hardcopy output (\$2,000).

One Wang Model 10 magnetic tape transport, 9-track, 800/1600 BPI, 45 IPS (\$19,000).

One Century 114 magnetic disk drive and disk pack, 14.5 million 16-bit word storage (\$24,000).

One Talos 48-inch by 60-inch flatbed table digitizer with a hand-held cursor, x and y coordinate display, resolution to 0.001 inch (\$24,000).

One Calcomp 7000 high-performance drafting system interfaced to the Nova II CPU including a 748 Flatbed Plotter with a 50-inch by 82-inch drafting area, four-pen pressurized inking system vacuum hold-down. Plotter speed: axial, 30 inches per second, and diagonal, 42 inches per second. Resolution 0.002 inch, controlled by Calcomp 925 controller (\$88,000).

### Capabilities

CAMS is capable of producing maps and representations for a number of parcel specific uses. The map-making process is as follows:

Before mapping, Unit cartographers are supplied with deeds from county archives and surveys, from as many sources as possible--county, Federal Government, utilities, etc. The cartographers use their knowledge of property law and surveying to assemble the information into a comprehensive map. This first map is just a tracing. The tracing is then readied for digitizing, which is the process of encoding map information into computer (digital) compatible form. The cartographer essentially follows the tracing with a hand cursor. Images are reproduced on the CRT during this process.

To facilitate digitizing, the cartographer has many powerful computer tools at hand. The most unique is a menu taped to the digitizing table. Summarized on the menu are a variety of functions that can be called for by placing the cursor above any particular menu square. For instance, a circle may be drawn on the screen by placing the cursor over square 1. The advantage of a menu is that it frees the cartographer from the time-consuming task of repeatedly typing each command. Functions on the menu include: (1) drawing circles or arcs; (2) deleting lines or any symbolism; (3) moving lines or any symbolism; (4) drawing lines parallel to any particular line; (5) cross-hatching any particular polygon; and (6) automatically recalling predigitized (macrocontrolled) letters, words, or any other symbol.

Data are arranged in hierarchical order starting with overlays, and then moving to domains and groups. An overlay is a set of similar groups, i.e., characteristics. For example, the annotation representing acreage may belong to one overlay and all symbolism representing railroads to another. Several advantages accrue from this data structure. First, it allows all information to be digitized. Very precise and detailed annotation is obtainable if this information is captured during digitizing. Second, inclusion or exclusion of overlays is simplified. One needs only to specify which overlays to manipulate. Third, editing and updating of previously prepared maps is extremely efficient. The groups can be targeted by the cursor for alteration or movement, as dictated by hand changes on the original mylar copies. Thus, the cost of redoing entire maps is avoided.

CAMS can produce maps of nearly any size and scale. A scale is chosen by indicating rectangular coordinates which set a map window. Clipping procedures will keep groups which are not entirely inside the window from exceeding the boundaries. One limitation is that a particular parcel, as



identified by its tax lot number from the map, cannot be chosen for individual mapping. This could have been a capability, but the legislature refused to authorize it. Standard maps are produced on mylar. Their size is 18 by 20 inches (1 inch to 400 feet), and they represent one range of one township, as defined by the Oregon State Plane Coordinate System. For example, approximately 1,762 maps make up the representation of Coos County. CAMS' ability to replot, rescale, and/or alter any of these 1,762 maps after initial digitizing allows unlimited updating at minimal marginal cost.

### Costs

Regardless of system capability, costs are what make the system a useful prototype. Projecting of costs and benefits has received much study, but many hazards remain in forecasting the future. However, the following data present a reasonable assessment of system expectations and provide an indication of the substantial savings that will be yielded by CAMS:

Total hardware costs for CAMS were \$184,000. An additional \$4,000 was used to purchase specialized software from CALMA. Exhibit 10C-1 shows a complete breakdown of the total \$252,150 first-year cost. Thus, 73 percent of the first year's cost was for hardware.

The benefits of CAMS can be measured in several ways. One way is to measure manpower savings. During the first 3 normal months of CAMS operation (January, February, March 1978), CAMS saved 2,980 man-hours. Exhibit 10C-2 shows projected and actual benefits in the first year of operation. Based on a 7-year life expectancy, the system is expected to pass the break-even point in 3.65 years. (See exhibit 10C-3.) Not represented in this analysis is the cost avoidance of hiring fewer cartographers to produce work requested by the legislature.

Other benefits could be received from more intensive use of the hardware. For example, the plotter is in use only 20 percent of the time. A change in work shifts could increase utilization of the plotter, but the Mapping Unit currently does not have the manpower to implement multiple work shifts. Other departments may use the system at cost (none have attempted to as yet), but to provide extra data entry stations (the Nova II is designed to handle three), extra disks and memory would be required. Additional cost/benefit analyses would be required for decisions in these areas.

The Mapping Unit shares the cost of producing maps with the county requesting the service. The Unit currently is working for Douglas County, at a cost to that county of \$500,000. Mead estimated that sparsely populated counties in eastern Oregon would cost at least \$200,000 each to map. Densely populated counties (such as Multnomah County, the smallest county in Oregon and the site of Portland) would cost about \$2,200,000 to map.

### Long-Range Costs and Benefits

The original cost/benefit analysis projected costs at a level rate of about \$30,000 per year after the purchase and initial development costs of the first year. These costs were conservatively estimated and did not allow for expanded operations or inflation. These continuing costs consisted of an operator's salary and a maintenance contract on the equipment. If a projection of future costs were to be made at this time, it likely would include expanded operations consisting of two or more daily shifts of work by additional equipment operators. The configuration of equipment likely would be expanded by some increased cost for maintenance service.

The original benefits also were projected conservatively; that is, they did not allow for increased volume of services. Cost avoidance, or savings from not hiring three cartographers, was a major benefit. However, the Department claims that as volume of activity in cadastral mapping increases, about 10 cartographers would be a projected requirement under a manual operation. Using CAMS, it is expected that no additional cartographers would be added. Therefore, cost avoidance could be projected at about three times the amount initially projected.

### Economies of Scale

An important aspect of CAMS' cost-effectiveness is the fact that it is situated at the State level, and can service all counties and other municipalities in Oregon. Were every county to create such a system, the benefit-cost ratio for each county would not be as high as for the CAMS system.

Hardware for CAMS could have cost slightly less, but only small savings on equipment would be possible without sacrificing some accuracy and capacity of the system. That is, for the type of work for which CAMS is intended (cadastral mapping, but there are other applications for such a system), costs could not be much less than they have been (the projections seem to have been quite accurate). Were CAMS to service a larger constituency than county tax offices, its productivity would be higher and its operating expenses would increase only marginally, making it even more cost-effective. The system is not constantly in operation, and could handle much more mapping activity.



Exhibit 10C-1

Actual Versus Projected First-Year Costs for CAMS

<u>Cost item</u>	<u>Projected first year</u>  (Dollars)	<u>12 months, actual</u>  (Dollars)
<u>Development of System</u>		
Design, analysis, procedure	8,103	5,908
Training	2,408	5,760
Installation	3,448	500
Project management	2,640	1,600
Overhead	<u>1,500</u>	<u>1,800</u>
Subtotal	18,099	15,568
<u>Operation-new</u>		
Equipment	180,000	184,000
Software	4,000	4,000
Supplies	3,000	1,810
Maintenance	14,000	14,772
Facilities (space)	<u>2,160</u>	<u>20,000</u>
Subtotal	203,160	224,582
<u>Operational-current</u>		
Personnel	<u>14,400</u>	<u>12,000</u>
Subtotal	<u>14,400</u>	<u>12,000</u>
TOTAL COST	235,659	252,150

Exhibit 10C-2

Actual Versus Projected First-Year Benefits from CAMS

<u>Benefits</u>	Benefit projection  (Dollars)	Actual, (10 mo.)  (Dollars)
<u>Cost reductions</u>		
Supply savings	200	None (see note 1)
Elimination of replot process	5,000	26,460 (see note 2)
Tracing cost reduction	8,000	6,502 (see note 3)
Map maintenance reduction	<u>-0-</u>	<u>2,664</u> (see note 4)
Subtotal	13,200	35,627
<u>Cost avoidance</u>		
Hire three fewer cartographers	49,680	52,704 (see note 5)
Avoid management costs	500	500
Equipment avoidance	<u>4,500</u>	<u>(4,500)</u> (see note 6)
Subtotal	54,680	48,704
<u>Receipts to CAMS</u>		
Douglas	14,420	* (see note 7)
Coos	14,420	
Forestry	10,000	
A&T fund	<u>          </u>	<u>14,724</u>
Subtotal	<u>38,840</u>	<u>14,724</u>
Total	106,720	99,055

Note 1.--CAMS' hidden supply costs offset estimated supply savings.

Note 2.--The potential here for further reductions was such that we could expect a \$62,200 reduction in fiscal 1979.

Note 3.--Would meet the original estimate if based on 12-month operation.

Note 4.--An unexpected benefit of CAMS.

Note 5.--Originally asked for six cartographers, or three cartographers if CAMS approved. Shows only wages (plus OPE) of the three cartographers. Did not hire the six cartographers.

Note 6.--Originally projected computing capabilities of CAMS were such that it would perform the major map and survey computations, thus eliminating the need for a programmable calculator. Discover, however, that the programmable calculator would enhance the CAMS operation.

Note 7.--Receipts will occur after each county project completed. Receipts from other agencies pending legislative committee approval of sharing plans.



Exhibit 10C-3

CAMS Cost-Benefit Summary, 6-Year Projected Operation

Cash Flow Summary

	<u>Fiscal 77</u>	<u>Fiscal 78</u>	<u>Fiscal 79</u>	<u>Fiscal 80</u>	<u>Fiscal 81</u>	<u>Fiscal 82</u>	<u>6-Year totals</u>
------(Dollars)-----							
Total benefits	106,720	112,944	102,456	105,912	108,792	111,816	648,640
Less total costs	(235,659)	(36,466)	(30,560)	(30,560)	(30,560)	(30,560)	(394,365)
Net difference	-128,939	+76,478	71,896	75,352	78,232	81,256	254,275
Cumulative difference		-52,461	19,435	94,787	173,019	254,275	254,275

Cost/benefit calculation  
(Dollars)

<u>Total 6-year benefits</u> <u>operational life</u>	$\left[ \frac{648,640}{6 \text{ years}} \right] = 108,106$	Average annual return
<u>Total 6-year costs</u> <u>average annual return</u>	$\left[ \frac{394,365}{108,106} \right] = 3.65$	Breakeven point

Source for exhibits 10C-1 through 10C-3: Oregon Department of Revenue, Report to the Joint Legislative Committee on Data Processing on the Computer-Assisted Mapping System (CAMS) Installed in the Department of Revenue, November 1978.

## APPENDIX D

### Local MPLDS Cost/Requirement Analysis

That each local MPLDS can evolve in various ways and to various levels of sophistication means that definitive specifications and cost calculations for a national "network MPLDS" are quantitatively elusive. Nonetheless, it is still possible to establish certain baselines which may help in appraising the economic feasibility of MPLDS options. In the following analysis, the many faceted configurations and capabilities of multipurpose, parcel-based land data systems have been condensed into three categories of systems (A, B, and C), each of which is specified according to seven functional criteria. Even this modest array of options involves difficulties in quantifying the total costs of an MPLDS, but useful baselines of cost still can be approximated.

The first portion of this appendix describes the MPLDS typology itself--the three systems in terms of the kinds and sources of typical data each might contain. This is followed in the second section by a cost analysis of the middle-level MPLDS (B). A level-B system would include the type of data base currently employed by an assessor, supplemented with a relatively small amount of additional data about each parcel and each owner. The level-B system is essentially the minimum one needed to answer questions about patterns of ownership of real estate parcels. The costs of instituting locally operated MPLDS systems having such capabilities (excluding capital costs of computerization) are summarized in table 10D-2 for the United States and each of the nine census divisions of the United States.

Because these cost data were calculated separately from rural and urban areas, the urban and rural costs also are shown in table 10D-2. However, it is not intended that there be separate systems for rural and urban areas. Rather, systems will include geographic areas such as counties. Therefore, the rural and urban cost breakdown should be used with caution. Finally, an overview is presented to analyze these findings.

### Typology of MPLDS Evolution

Table 10D-1 outlines the functional capabilities of three levels (or grades) of land data systems. The levels are labeled C, B, and A, ranging from the least to the most sophisticated system, respectively.

The three levels can be thought of as assessment tax rolls (C), assessment data bases (B), and multiagency data bases (A). The last category also could include data for a juridical cadastre. The scenario of MPLDS evolution described in chapters 7 and 10 advocate MPLDS development around the assessment functions of local government, as tax assessors generally have the most complete and reliable parcel data and are most likely to first employ parcel indexing. The typology presented here identifies seven dataset components which might exist in an MPLDS according to the quality and timeliness of data available in each class of MPLDS.



Table 10D-1--Typology of Multipurpose Land Data Systems

COMPONENT	FACTOR	MPLDS LEVEL		
		C	B	A
Base Map	Quality Update - Freq. - Sources Computer Use	Ratio enlargement of air photo 5-10 years USDA photography No	To scale, w/o grid rectified enlargements, orthophoto 5-10 years Mapping contractor No	US map accuracy, with geodetic coordinates 3-5 years mapping contractor No
Property Map	Quality Update - Freq. - Sources Computer Use	Identify parcel, not boundary 1-5 years Owner inquiry No	By analysis of deeds 1-6 months Copies of recorded deeds No	By analysis of plans weekly Copies of recorded plans Digitized from map*
Parcel Identifiers	Quality Update - Freq. - Sources Computer Use	Assigned number (e.g., Map/Lot) Annual Local office Yes*	System of unique assigned numbers 1-6 months Local office Yes*	Level B plus coordinates of visual centroid daily Local office Yes
Legal Boundaries	Quality Update - Freq. - Sources Computer Use	Elsewhere (in recorded surveys) Only when filed Owner (or surveyor) No	Elsewhere (in recorded surveys) Only when filed Owner (or surveyor) No	Elsewhere (in recorded surveys) Only when filed Owner (or surveyor) No
Ownership and Valuation Data ("Min. Data Set")	Quality Update - Freq. - Sources Computer Use	Taxpayer only Annual Recorded deed Yes*	Complete 1-6 months Recorded deed Yes*	Complete daily Keyed to recorder's indexing Yes
Other Parcel Data	Quality Update - Freq. - Sources Computer Use	Elsewhere - - -	Assessment Factors 1-5 years Field checks - Staff Yes*	Multipurpose daily Public agency transactions Yes
Links to Environ- mental Data (for non-parcel areas)	Quality Update - Freq. - Sources	None - -	None - -	By boundary coordinates Upon new field survey Field survey

\* = optional

- = Not applicable

Table 10D-2

Cost Estimates for Level - B MPLDS, by Census Divisions, Rural, Urban, and United States.

RURAL TERRITORY											
DIVISION	POPULATION MILLIONS	LAND AREA SQ. MI.	PARCELS MILLIONS	ACRES/ PERSON	ACRES/ PARCEL	TOTAL \$COST MILLIONS	\$COST/ PERSON	\$COST/ PARCEL	\$COST/ ACRE	\$CREDITED TO DATE MILLIONS	\$COST TO COMPLETE MILLIONS
NEW ENGLAND	3.008	60751.	1.05	12.93	37.21	65.08	21.64	62.27	1.67	41.75	23.32
MIDDLE ATLANTIC	7.178	95792.	2.09	8.54	29.28	124.31	17.32	59.36	2.03	66.83	57.48
EAST NORTH CENTRAL	10.726	235873.	4.11	14.07	36.70	141.85	13.22	34.49	0.94	96.27	45.58
SOUTH ATLANTIC	10.909	259235.	5.21	15.21	31.84	277.91	25.48	53.33	1.68	203.61	74.30
EAST SOUTH CENTRAL	5.865	174722.	2.33	19.07	48.01	130.65	22.28	56.10	1.17	85.37	45.28
WEST SOUTH CENTRAL	5.373	419961.	3.10	50.02	86.76	136.53	25.41	44.07	0.51	52.72	83.80
WEST NORTH CENTRAL	6.115	502768.	3.51	52.62	91.78	130.28	21.31	37.16	0.40	60.58	69.70
MOUNTAIN	2.187	853392.	1.41	249.71	386.80	183.92	84.09	130.25	0.34	140.68	43.24
PACIFIC	4.210	885530.	1.69	134.60	335.15	206.66	49.08	122.21	0.36	150.11	56.55
UNITED STATES	55.571	3468024.	24.50	40.17	91.12	1397.19	25.14	57.03	0.63	897.92	499.26
URBAN TERRITORY											
DIVISION	POPULATION MILLIONS	LAND AREA SQ. MI.	PARCELS MILLIONS	ACRES/ PERSON	ACRES/ PARCEL	TOTAL \$COST MILLIONS	\$COST/ PERSON	\$COST/ PARCEL	\$COST/ ACRE	\$CREDITED TO DATE MILLIONS	\$COST TO COMPLETE MILLIONS
NEW ENGLAND	8.834	2200.	3.07	0.16	0.46	116.84	13.23	38.07	82.98	76.18	40.66
MIDDLE ATLANTIC	30.019	4526.	8.76	0.10	0.33	316.44	10.54	36.14	109.24	179.03	137.41
EAST NORTH CENTRAL	29.519	8228.	11.32	0.18	0.47	319.19	10.81	28.20	60.61	218.08	101.10
SOUTH ATLANTIC	19.759	7735.	9.44	0.23	0.52	325.15	16.46	34.45	65.68	255.55	69.60
EAST SOUTH CENTRAL	6.932	4260.	2.75	0.39	0.99	100.27	14.46	36.42	36.78	69.40	30.87
WEST SOUTH CENTRAL	13.944	7830.	8.04	0.36	0.62	255.81	18.35	31.82	51.05	96.74	159.06
WEST NORTH CENTRAL	10.199	4955.	5.95	0.31	0.54	168.10	16.48	28.74	53.01	77.62	90.47
MOUNTAIN	6.091	2655.	3.93	0.28	0.43	103.66	17.02	26.36	61.00	86.80	16.85
PACIFIC	22.315	6442.	8.96	0.18	0.46	246.67	11.05	27.52	59.83	219.94	26.74
UNITED STATES	147.612	46831.	62.12	0.21	0.50	1952.11	13.22	31.43	62.46	1279.34	672.77
TOTAL TERRITORY											
DIVISION	POPULATION MILLIONS	LAND AREA SQ. MI.	PARCELS MILLIONS	ACRES/ PERSON	ACRES/ PARCEL	TOTAL \$COST MILLIONS	\$COST/ PERSON	\$COST/ PARCEL	\$COST/ ACRE	\$CREDITED TO DATE MILLIONS	\$COST TO COMPLETE MILLIONS
NEW ENGLAND	11.842	62951.	4.11	3.40	9.79	181.92	15.36	44.22	4.52	117.93	63.99
MIDDLE ATLANTIC	37.197	100318.	10.85	1.73	5.92	440.75	11.85	40.62	6.86	245.86	194.89
EAST NORTH CENTRAL	40.245	244101.	15.43	3.88	10.12	461.04	11.46	29.88	2.95	314.35	146.68
SOUTH ATLANTIC	30.668	266970.	14.65	5.57	11.66	603.05	19.66	41.16	3.53	459.16	143.90
EAST SOUTH CENTRAL	12.797	178982.	5.08	8.95	22.54	230.93	18.05	45.44	2.02	154.77	76.16
WEST SOUTH CENTRAL	19.317	427791.	11.14	14.17	24.58	392.34	20.31	35.23	1.43	149.47	242.87
WEST NORTH CENTRAL	16.314	507723.	9.35	19.92	34.74	298.38	18.29	31.90	0.92	138.21	160.17
MOUNTAIN	8.278	856047.	5.34	66.18	102.52	287.57	34.74	53.81	0.52	227.49	60.10
PACIFIC	26.525	891972.	10.65	21.52	53.59	453.33	17.09	42.55	0.79	370.04	83.29
UNITED STATES	203.183	3536855.	86.62	11.14	26.13	3349.30	16.48	38.67	1.48	2177.26	1172.04



## Cost Analysis for Nationwide Adoption of Level B MPLDS

The move up from maintaining local tax rolls (level C) to maintaining an assessment factor data base (level B) may be a simple transition or involve a thorough reorganization of the local land data system. The difference in principle is that the latter system contains a variety of facts about parcels which are not required for the maintenance of simple tax rolls (parcel inventories). In addition, because B is the kernel of an ever-expanding MPLDS, it is assumed that maintaining an inventory of parcels via mapping and the assignment of identifiers to them would be approached with greater care and thoroughness than for a simple tax listing effort.

The data in table 10D-2 were derived by using the States as the basic unit of compilation. These State data were aggregated into the nine Census Divisions, for which data are displayed in the table. Data for urban and rural portions of each Census Division also are contained in the table.

The total cost estimate is based on five major cost factors: (1) base mapping, (2) property line mapping, (3) property characteristics enumeration and value assessment, (4) data entry, and (5) data processing. Following the enumeration of these costs, details on their computation and estimated reliability are discussed. The costs associated with activities required to generate data to be included in a level-B system were estimated as follows:

### I. Aerial photography (base mapping)

#### A. Ratioed enlargements--sufficient in regions of low terrain relief:

1. Rural (1"=400'); @\$25/sq. mi.
2. Urban (1"=100'); @\$200/sq. mi.
3. "Ranch" (1"=2000'); @\$10/sq. mi.

#### B. Orthophotography--required in most States due to prevalence of steep terrain which distorts traditional aerial photographic images:

1. Rural (1"=400'); @\$300/sq. mi.
2. Urban (1"=100'); @\$2,400/sq. mi.
3. "Ranch" (1"=2,000'); @\$100/sq. mi.

Three mapping scales were utilized in this analysis. Alaska can be mapped at 1"=2,000' scale, and some portions of most western States can be as well, primarily in rangeland, forested areas, and wilderness preserves. It was assumed that all States except the following 20 would require orthophotography, where ratioed enlargements would suffice: Alabama, Arkansas, Georgia, Florida, Illinois, Indiana, Iowa, Kansas, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, North Dakota, Ohio, Oklahoma, South Dakota, Texas, and Wisconsin. While some of these States do contain

rugged areas (necessitating some orthophotography), these costs would be offset by avoidance of orthophotography in flat regions in the remaining States.

II. Property line mapping (tracing of parcel boundaries onto a photographic base, using as data legal descriptions of properties from deeds, owner inquiries, and prior parcel and subdivision maps):

A. Federal survey States

1. Rural @ \$12.50/parcel

2. Urban @ \$7.50/parcel

B. New England

1. Rural @ \$28.13/parcel

2. Urban @ \$16.88/parcel

C. Middle Atlantic

1. Rural @ \$26.88/parcel

2. Urban @ \$16.13/parcel

D. Southeast

1. Rural @ \$25.63/parcel

2. Urban @ \$15.38/parcel

The apparent precision of these cost factors is the result of averaging several sets of estimates derived from commercial property mapping firms.<sup>58/</sup> No urban-rural differentials were postulated, as they would have been small, compared with the variation in costs among deed recording jurisdictions. Still lower mapping costs could be achieved by not resorting to analysis of deeds (i.e., by querying owners directly instead), but the results would be insufficiently reliable for constructing an MPLDS.

III. Enumeration of property characteristics and evaluation of property worth:

A. Farm acreage @ \$24/parcel

B. Residential @ \$15/parcel

C. Commercial and industrial @ \$38/parcel

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<sup>58/</sup> Per parcel costs furnished by Robert Barg of The Sidwell Company, West Chicago, Ill., Richard Cameron of PRC Jacobs, McLean, Va., and Richard Borst of Cole-Layer-Trumble Co., Dayton, Ohio.



D. Vacant @ \$4/parcel

This represents the costs of property tax assessment. Four classes of parcels were tabulated separately, then added together for a total cost of this activity. All farms were allocated to rural areas and business property to urban areas.

IV. Data entry for all assessment factors:

A. Map/tract index @ \$1/parcel

B. Land characteristics @ \$0.10/parcel

C. Structure characteristics @ \$2/parcel

V. Data processing for all assessment factors:

A. Valuation of property @ \$0.50/parcel

Data entry and data processing costs sum to \$3.60 per parcel, and this figure was used for all parcels regardless of use or location. These costs represent the cost of typing or keypunching the data into card format, but do not include the cost of tabulating or otherwise analyzing these data.

While counts of parcels were available by major categories of land use for each State, these data did not identify the number of urban and rural parcels. Therefore, for residential and vacant properties, it was necessary to assume that the urban/rural split was the same as that of population.

The amount of urban land is a small but significant fraction of all land, and its extent was required to allocate base mapping costs. Urban acreage was obtained by summing the land area of all places with population of 2,500 or more, as published by the Bureau of the Census in the City-County Data Book. Identification of urban land area also permitted the calculation of urban densities (for both population and parcels) and costs per acre. The method of tabulating urban land area, and its limitations are discussed below.

All calculations were performed on each of the 50 States and the District of Columbia independently, then aggregated for Census Divisions<sup>59/</sup> and national totals. This was performed separately for rural and urban areas and their combinations, providing 30 separate geographic splits of the calculated statistics (9 divisions plus their total times 3 tables).

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<sup>59/</sup> The Divisions are constituted as follows:

New England: CT, MA, ME, NH, RI, VT

Middle Atlantic: NY, NJ, PA

East North Central: IL, IN, MI, OH, WI

South Atlantic: DE, DC, FL, GA, MD, NC, SC, VA, WV

East South Central: AL, KY, MS, TN

West South Central: AR, LA, OK, TX

West North Central: IA, KS, MN, MO, NB, ND, SD

Mountain: AZ, CO, ID, MT, NM, NV, UT, WY

Pacific: AK, CA, HI, OR, WA

Note that this analysis is limited to privately held land. That is, it is not presumed that public lands would be included in an MPLDS at this level at this time (although publicly held parcels still would be mapped, but are not taxed and would not have to be assessed). While such parcels are excluded from the counts of parcels, the area that they occupy was not subtracted from urban or rural area totals. This means that the statistics giving "cost per acre" are somewhat low, particularly in Mountain and Pacific States where much of the land area is federally owned.

A caveat is in order in regard to the last two columns of table 10D-2, where the portions of a level-B MPLDS which currently exist are credited against the estimated total cost. The current level of investment in MPLDS components has not been tabulated for the entire Nation before. The figures used here were derived in part from Almy's survey of State assessing officials reported in chapter 8. Table 8-12 summarizes the status of property mapping for each State and estimates the percentage of assessing districts which currently have property maps available. These percentages vary from 5 to 95 percent, with the majority of States being at least 50-percent mapped. In addition to an estimate of the proportion of mapping completed, the proportion of jurisdictions that have a computerized data base also was used in estimating the proportion of total costs that already have been expended. Base mapping costs and computerization of data base costs were assumed to be 85 and 15 percent of total costs, respectively.

Certain possible weaknesses in the assumptions used should be noted. First, the percentage of districts may not be equal to the percentage of parcels mapped. Also, no information is available concerning the urban/rural distribution of existing property mapping. Another assumption is that every district's mapping effort includes most of the components of a level-B MPLDS. No doubt considerable variation does exist among local tax mapping and data base automation efforts, particularly with regard to the amount of property characteristics enumerated and the effort spent to evaluate them. It is probably within reason to conclude, however, that, of the \$3.35 billion which a level-B MPLDS would cost local governments, over half already has been spent. Substandard systems in some localities might be upgraded, in addition, without necessarily incurring full costs of mapping, enumeration, and evaluation.

#### Differences Between Systems A and B

Moving from MPLDS system B up to system A entails certain costs which can be anticipated, and others which are open-ended. Referring to table 10D-1, the major additions to move from level B to level A are the following:

1. Base mapping: Required use of U.S. map accuracy standards for surveyed coordinates, or an equivalently rigorous x-y-z control.
2. Property mapping: Incorporate (1) into corner descriptions.
3. Parcel identifiers: Include coordinates of visual centroid to facilitate analysis by location; this and following data to be computerized for flexible updating and retrieval.



4. Assessment data: Direct linkage to deed recorder's files, allowing automatic update of MPLDS when property changes hands.

5. Other data: A widening circle of agencies contribute to and use MPLDS data. Coordination of parcel and nonparcel data begins, which implies a more sophisticated computerized geographic data base.

The costs of adding unspecified parcel and environmental data sets to an MPLDS cannot be tabulated without knowing the type, quantity, and methods of acquisition of data to be incorporated. Likewise, the requirement of computerization can be met in alternative ways. Each locality need not acquire a mainframe computer; service bureaus and regional facilities may be more cost-effective in rural/small town settings. Similarly, the number of local agencies which participate in developing and maintaining an MPLDS will affect its cost. Appendix B includes a discussion of the diffusion of costs and benefits as more actors participate in an MPLDS.

Perhaps the most easily summarized additional costs associated with a level-A MPLDS (compared with a level-B system) are those associated with base mapping. While the base maps created for a B MPLDS would be fully useful for A, additional geodetic control would be required to locate points on maps within required accuracies. This implies a densification of the U.S. land survey network. The amount of work required to extend and improve existing horizontal and vertical monumentation varies by topography, urbanization, region, and technology employed.

The following national estimates of the costs of enhancing geodetic control for base mapping are based on data provided by Captain John O. Phillips, Director of the National Ocean Survey, U.S. National Oceanic and Atmospheric Administration.<sup>60/</sup> Certain revisions were made by the principal author. These costs are given in 1979 dollars and assume (as above) three mapping scales (urban, rural, and ranch/wilderness), each having the same costs per station, but with different station densities in each domain. Both horizontal and vertical control costs were computed (horizontal at \$1,050 per station and vertical at \$500 per kilometer of station spacing). Use of the Global Positionary System (GPS), now being put in place by the U.S. Department of Defense, was presumed for fixing positions. This system is satellite-based, partially operational now, and should be fully operational by the mid-1980's. By that time, the system of satellites is expected to provide fixes having absolute horizontal accuracies within a few centimeters and vertical accuracies within a few meters. Without the availability of GPS technology, considerably greater manpower and expense would be required for a monument densification program.

Table 10D-3 presents the (national) requirements and costs for a monumentation densification program adequate to achieve MPLDS level-A accuracies in property-line mapping.

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<sup>60/</sup> The assistance of James Stem, NOAA/National Geodetic Survey is also gratefully acknowledged.

Table 10D-3--Amount and cost of monument densification  
necessary for level-A MPLDS

	Urban		Rural		Total	
	# Stations	\$ Cost (Millions)	# Stations	\$ Cost (Millions)	# Stations	\$ Cost (Millions)
Horizontal	4,340	4.562	44,230	46.450	48,570	51.012
Vertical	5,360	4.280	18,400	14.700	23,760	18.980
Total	9,700	8.842	62,630	61.150	72,330	69.992

The same assumptions about the extent of urban territory in the United States are used in table 10D-2 and table 10D-3: the 48,831 square miles of urban land tabulated were derived by summing the land areas of all urban places (having populations of 2,500 persons or more), as given in the 1972 City-County Data Book published by the Bureau of the Census. Additional territory probably exists and would have to be mapped at urban scale (1"=100' presumed). The coverage of the urban areas described above would entail the nonurban territory immediately surrounding many urban places being mapped at urban scale as well. The cost consequences of such spill-overs are computationally elusive, but probably would no more than double urban aerial photography costs. At the same time, rural photography costs would decrease, but by a much smaller factor.

By adding the net costs given in tables 10D-2 and 10D-3, a baseline estimate of the costs of creating level-A MPLDS throughout the Nation come out as \$1.242 billion, of which the monumentation component represents 5 percent (\$0.07 billion). Not costed-out, as mentioned above, are the clerical expenses of entering the additional (but open-ended) categories of data which a level-A system might contain, nor are the expenses of modifying property maps to reflect the acquisition of more accurate monumentation.



## Chapter 11

### LEGAL FEASIBILITY OF MULTIPLE-PURPOSE LAND DATA SYSTEMS

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and Julie O'Connor\*

#### INTRODUCTION

This chapter deals with the legal aspects of establishing a multipurpose land data system (MPLDS) and of using such a system to monitor direct investment in U.S. real estate. Since it is a part of the study mandated by Congress pursuant to Section 4(d) of the International Investment Survey Act of 1976, 22 U.S.C. 3101 (the Study), the parameters are set by the statutory charge:

The President shall conduct a study of the feasibility of establishing a system to monitor foreign direct investment in agricultural rural, and urban real property, including the feasibility of establishing a multipurpose land data system....

Emphasis on the system, as such, also is derived from the description of the Study published by the Economics, Statistics, and Cooperatives Service of the U.S. Department of Agriculture, the agency responsible for the Study. It specified that the legal component is to concern "legal analysis of multipurpose systems as they are designed and used for compiling information on foreign investment in U.S. real estate." (Notice, 43 Fed. Reg. 223, November 17, 1978).

These directives have been interpreted to mean that the objective is to analyze whether a multipurpose land data system is a feasible means to collect information about land, including information as to ownership. If so, then presumably not only could reporting of foreign direct investment be achieved by this means but a ready perspective on the underlying concern as to the relative extent and impact of foreign investment in any given community could be obtained.

Before entering into a legal analysis, it is, of course, fundamental to define what characteristics the MPLDS would have and how it would function. The number of tasks which could be performed, given today's computer technology, theoretically may be without limit. Therefore, certain characteristics and functions have been attributed to the MPLDS in order to address abroad, substantive range of legal issues without, at the same time, running the risk of becoming unduly theoretical.

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\*/ Ross, Hardies, O'Keefe, Babcock & Parsons, Chicago, Illinois.

These structural assumptions, drawn from the content of the International Investment Survey Act and the commonly accepted features of an MPLDS, noted by other participants in the study, are as follows.

The MPLDS will have the following characteristics:

1. Existing divisions of land will be used to create a parcel index.
2. A unique parcel identifier will be assigned to each parcel.
3. All land data and documents will be required to be coded with the parcel identifier.
4. All information entered in the system will be indexed according to the geographic location of the parcel of land involved.
5. All levels of government will have access to the system of both input and output.
6. The system may be, but need not be, structured in such a way that the computer can instantaneously aggregate all MPLDS data on a given individual or legal entity.

The MPLDS will have the capability to accept minimum data relating to the following activities:

1. Title transfers, notices of interests affecting land, and claims against owners of land.
2. Taxation.
3. Land use planning.
4. Environmental and other governmental regulations.
5. Measurement of foreign direct investment.

The data to be collected will include information covering the following interests in real property ("direct investments"):

1. Ownership of ten percent or more of the fee or of the beneficial interest in any title holding trust.
2. Ownership of any leasehold held for profit-making purposes (qualifying leasehold).
3. Ownership of an interest of ten percent or more in any entity owning the fee, beneficial interest, or qualifying leasehold.
4. Control of the holder of an interest of ten percent or more in any entity owning the fee, beneficial interest, or qualifying leasehold.
5. Ownership of or control of the holder of an interest of ten percent or more in any easements or in mineral, timber or water rights held for profit-making purposes.
6. Option or contract rights to purchase any direct investment.

The data collected will include information as to:

1. The holder of the direct investment.
2. The residency of the holder of the direct investment.
3. The citizenship of the holder of the direct investment.



Based on these assumptions as to structure and content, two alternatives for implementing a MPLDS have been chosen for analysis. The first alternative, known as the "network MPLDS," envisions the State-by-State modification of existing land information systems to embrace all of the above MPLDS characteristics. The onus of this effort would fall upon State and local officials. Once completed, the network MPLDS would be capable of totally replacing traditional land recordation systems, in addition to providing an array of multiple purpose functions which are not presently included in any one State or local system.

The other alternative considered is a survey effort conducted regularly by agents or officers of the Federal Government. This "survey system" would not appear to be capable of addressing the full range of MPLDS functions described above. For example, occasional survey efforts could not aspire to replace traditional State and local land recordation systems. Nonetheless, the survey system could be "multiple purpose" in the sense that it collects data on a number of diverse subjects such as foreign ownership, land use, and assessed property valuations. For the purpose of this analysis, it also is assumed that the survey system will require the federal government to coerce or induce both the private sector and State and local governments to cooperate in some kind of reporting effort.

The implementation of either of these MPLDS alternatives would result in several novel departures from the status quo. For example, the Federal Government would become involved for the first time in the systematic collection of land use and ownership data. And State and local governments would no longer simply generate or record land use and ownership information; they also would organize and aggregate their information in a parcel-specific, retrievable manner.

What legal issues arise if the MPLDS is implemented by means of either the network system or the survey system? The following areas will be discussed in this chapter.

#### I. The Permissible Scope of the Governmental Power to Compel Disclosure of Land Related Data.

Just how far can government go in acquiring and disseminating information on individuals? Part One, entitled "Reporting and Disclosure in the MPLDS Environment," examines familiar Federal constitutional protections from the point of view of those who are required to report data and those who are reported upon. In recent years, however, both Federal and State "privacy acts" have given rise to protection which supplements the rights derived from the federal and state constitutions. Would these statutes have to be modified in order to implement the MPLDS? Do they impose too high a standard of care upon the governmental data gatherer, or upon private parties reporting data under these laws? Does the philosophy of these privacy acts clash with the rationale of State or Federal freedom of information acts? These questions are considered in detail in Part One.

## II. Implementation of the MPLDS by the Federal Government.

Which portions of the U.S. Constitution enable the Federal Government to impose the MPLDS "survey system" on State and local governments and private citizens? This is an important question should a legal attack on the survey system be mounted by those who do not wish to cooperate. Part Two of this report entitled "The Role of the Federal Government in Establishing the MPLDS" examines the jurisdictional foundation for the MPLDS found in the "Census", "Commerce", "Welfare", and "Necessary and Proper" clauses of the U.S. Constitution. Part Two also examines precedents for securing State participation in the MPLDS, not through Federal mandate, but by means of federal monetary inducement. The creation of the "network" MPLDS, for example, conceivably could occur through the so-called "carrot" approach.

However, the recent U.S. Supreme Court decision in National League of Cities v. Usery, 426 U.S. 833 (1976), throws new and uncertain light upon the ability of the Federal Government to affect the internal machinery of State government. Thus, National League of Cities and its future progeny could have a significant impact on the design of the MPLDS, whether it be a "survey system" or "network system", or whether it relies primarily upon the "carrot" of financial inducement or the "stick" of mandatory participation. The impact of National League of Cities is examined in Part Two.

## III. Whether State Laws Can Readily be Adapted to Implement the Network MPLDS.

The network system provides the greatest opportunity to implement a truly versatile MPLDS. Would the implementation of the MPLDS in a State, however, require changes in State constitutional provisions dealing with the responsibilities of local officers and the autonomy of "home rule" counties and municipalities? How many State statutes would need to be modified to make the necessary intergovernmental cooperation among county recorders, assessors, etc., a reality? In short, is there a danger that the MPLDS would require so many sweeping changes in State law that its implementation may not be politically feasible? In exploring this question, the authors have undertaken in-depth surveys of the laws of seven States, each of which is described in appendices to this report. The conclusions drawn from these surveys appear in Part Three entitled "Existing State Law and the Feasibility of MPLDS."

## IV. What Constraints Are Relevant in Comparing the Relative Feasibility of the Survey and the Network MPLDS.

The survey system and the network system employ quite different approaches to obtaining information about land. The survey system approach is statistically oriented. The network system approach provides raw data in the form of transactional information. The survey system in the main is responsive to government needs. The network system has the potential to assist those dealing with land and to expedite their transactions. Which system is better? Part Four entitled "Design and Use of the MPLDS From a Legal Standpoint" sets out twelve criteria for assessing the comparative legal feasibility of the two systems. The criteria reflect constraints



which are drawn from existing law and practice or which are critical to the objectives of the MPLDS. The assumption is that legal feasibility depends not only on whether the system is lawful but whether it is workable from the standpoint of implementation and enforcement. The pros and cons of each system in these respects are briefly reviewed in Part Four.

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As this Introduction suggests, the implementation of the MPLDS raises a galaxy of legal issues. This chapter attempts to focus on some of the more fundamental questions. The authors hope that these efforts will contribute to future dialogue on the improvement and expansion of land data systems.

## PART ONE

### Reporting and Disclosure in the MPLDS Environment

Building the MPLDS data base will require reporting. Means which have been suggested range from requiring input of public records to accessing data bases maintained by private entities. Reporting may entail new legislation or regulations under existing grants of authority for the specific purpose of obtaining desired data about land and land transactions. To be effective, any system most likely will have to impose penalties upon those who fail to provide the information. And if the system is to monitor ownership and commerce in land, as contemplated under the International Investment Survey Act of 1976, the type of information which must be reported will include: detailed information about legal and beneficial interests in real estate; information concerning the holder of the interest and such holder's citizenship and residency; and information concerning the consideration paid for real property.

This information is not commonly found in governmental land data gathering, except in certain regulatory legislation. Likewise, the creation of a government land data bank where all data gathered about a particular parcel are stored is novel. Therefore, this section focuses on the threshold question of whether requiring routine reporting and disclosure of ownership and transactional data is subject to constitutional, statutory, or public policy objections.

#### I. Constitutional Aspects.

Assuming the MPLDS reporting requirements would apply to U.S. as well as foreign ownership, recent opinions of the Supreme Court on challenges to the constitutionality of other government information gathering systems are pertinent in assessing the legal feasibility of the MPLDS. The relevant constitutional questions are: (1) whether the "red tape" imposed by MPLDS reporting requirements is so onerous that it breaches notions of governmental rationality imposed by the due process requirements of the Fifth and Fourteenth Amendments to the U. S. Constitution; and (2) whether the disclosures required for the MPLDS violate established constitutional rights, such as the First Amendment's freedom of association, the Fourth Amendment's protection against unreasonable searches and seizures, the Fifth Amendment's protection against self-incrimination, and



the constitutional "right of privacy" discussed in recent Supreme Court decisions such as Griswold v. Connecticut, 381 U.S. 479 (1964); and Roe v. Wade, 410 U.S. 113 (1972).

In delineating these issues, attention must be paid to the constitutional impact on both the parties required to report and the parties whose interests are disclosed, as the case of California Bankers Assn. v. Schultz, 416 U.S. 21 (1973) illustrates. That case and its offspring, United States v. Miller, 425 U.S. 435 (1976), also warrant attention because of the similarities between the information gathering there in issue and the MPLDS objectives. Moreover, the multi-faceted attack in California Bankers upon recordkeeping and reporting requirements, together with the responses of both the majority and the dissenting Justices, affords a comprehensive picture of the constitutional aspects of government information gathering.

Briefly summarized, California Bankers arose out of an application by a bank, an association representing banks, bank depositors and the American Civil Liberties Union for a temporary restraining order prohibiting the Secretary of the Treasury and others from enforcing the Bank Secrecy Act.<sup>1/</sup> Notwithstanding its popular name, the Act deals with discovery of banking secrets and was enacted after extensive hearings on the use of Swiss bank accounts, skimming of gambling profits, and other activities thought to have a debilitating effect on the U.S. economy. Despite the objective, the plaintiffs apparently were not convinced that they should assist in monitoring possible abuses. As characterized by the Court, their allegations presented a "myriad of constitutional challenges to the Act." The supporting arguments, in turn, put in question virtually all of the provisions of the Act as well as the regulations promulgated by the Secretary of the Treasury.

By way of background, the Act, in substance, addresses the need for certain recordkeeping and reporting of financial transactions for the purpose of preserving information having "a high degree of usefulness in criminal, tax, or regulatory investigations or proceedings." While certain of the requirements are contained in the Act itself, the Secretary of the Treasury also is authorized to issue regulations defining and implementing the Act. The recordkeeping requirements are imposed on federally insured banks, and may be extended to other insured institutions and financial institutions subject to the authority of the Secretary.

The reporting requirements are applicable to foreign financial transactions and certain domestic financial transactions. Those applicable to foreign transactions cover transportation of monetary instruments and disclosure of relationships with foreign financial institutions. Those applicable

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<sup>1/</sup> Pub. L. 91-508, 84 Stat. 1114, 12 U.S.C. §§1730(d), 1829(b), 1951-1959 and 31 U.S.C. §§1051-1062, 1081-1083, 1101-1105, 1121-1122. (Enacted 1970).

to domestic transactions cover financial dealings which the Secretary decides meet the "high degree of usefulness" criteria. With respect to foreign transactions, the parties required to report are the U.S. participants in the transaction. With respect to domestic transactions, the Act permits the Secretary to require reports from financial institutions or the parties.

Thus, the Bank Secrecy Act and its regulations reach parties who have information and parties whom the information concerns. The ACLU, as a depositor, also argued that access to its records would lead to disclosure of its members' financial transactions. The interests of this array of plaintiffs led to in the following constitutional challenges.

A. The due process objection. -- How much reporting becomes too much simply because the benefit derived by the government from the disclosure is either minimal or does not outweigh the burdens placed on the citizenry? <sup>2/</sup> The plaintiff banks in California Bankers raised this issue in the context of the Fifth Amendment, contending that the financial recordkeeping requirements deprived them of due process. Their argument was double-barrelled.

Their first contention was that no rational relationship between the objectives of the Act and the recordkeeping requirements was present because the Act was not directed to regulation of the recordkeeper. The majority of the Court replied that, since Congress had determined the records were needed, that was enough to justify the requirements. Concluding that

...there is a sufficient connection between the evil Congress sought to address and the recordkeeping procedures it required to pass muster under the Due Process Clause of the Fifth Amendment (416 U.S. at 49),

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<sup>2/</sup> The judicial practice of scrutinizing the necessity of legislation in this manner is best symbolized by the Supreme Court decision in Lochner v. New York, 198 U.S. 45 (1905), which involved legislation making it a crime for a baker to permit his employees to work more than 60 hours a week. In an opinion which has since been rejected many times, the Court held the statute unconstitutional as "an unreasonable, unnecessary and arbitrary interference with the right of the individual to his personal liberty." In Whalen v. Roe, 429 U.S. 589, 597 (1976), the modern Supreme Court indicated that "...legislation which has some effect on individual liberty or privacy may not be held unconstitutional simply because a court finds it unnecessary, in whole or in part." In Ferguson v. Skrupa, 372 U.S. 726, 730 (1962), the Supreme Court indicated that the "Lochner-era" approach "has long since been discarded;" in Griswold v. Connecticut, 381 U.S. 479, 482, Lochner was rejected because of the Court's belief that "We do not sit as a super-legislature to determine the wisdom, need, and propriety of laws that touch economic problems, business affairs, or social conditions."



the Court in a footnote observed that "Congress had before it ample testimony that the requirement that banks reproduce checks and maintain other records would significantly aid in the enforcement of federal tax, regulatory and criminal laws, even though a substantial portion of the checks drawn on banks in the United States may never be of utility for law enforcement....", 416 U.S. at 49, n. 21. The Court also remarked that the requirements were hardly a novelty, citing comparable requirements under the Internal Revenue Code, the Emergency Price Control Acts, and the Fair Labor Standards Act.

The banks' other contention was that the costs involved in compliance deprived them of due process of law by imposing an unreasonable burden. The Court's response was terse:

They [the banks] cite no cases for this proposition, and it does not warrant extended treatment.... The cost burdens imposed on the banks by the recording requirements are far from unreasonable, and we hold that such burdens do not deny the banks due process of law 416 U.S. at 50.

Applying the California Bankers view of due process to the MPLDS, would recordkeeping requirements as to ownership and commerce in land, be constitutionally suspect? According to the majority of the Court, the critical factor is the connection between the legislative purpose and the requirement, rather than the weight of the burden. As doctrine, this statement may not be so axiomatic as it seems in view of the majority's extensive recognition of the needs and the evils addressed by Congress in enacting the Bank Secrecy Act. Presumably, however, any MPLDS enabling legislation would contain legislative findings which sufficiently support the purpose and need for the system. As suggested in other chapters, these include the need to establish uniform land recordation practices to facilitate the flow of investment in real estate; the need to assemble information on foreign investment pursuant to the authority of Congress to legislate with respect to foreign commerce and affairs; the need to facilitate enforcement of legislation such as the International Investment Survey Act; and the need to assemble geophysical, environmental, and land use data to facilitate planning at all levels of government.

In finding the connection between purpose and burden, the benefits of the MPLDS presumably would also be persuasive just as the "high degree of usefulness" criteria with respect to bank records was emphasized by the Court in reviewing the Bank Secrecy Act. For instance, disclosure concerning land ownership can assist local government in enforcing its housing code, building code, and real property tax laws, while a network MPLDS could certainly expedite the torturous searches parties to real estate transactions must undertake.

Summing up, while those required to report may argue that requirements are cumbersome, time-consuming, or costly, the majority of the California Bankers Court plainly indicates that the cost of red tape does not amount to a constitutional violation of due process. Further, although strong dissents were registered by Justices Douglas, Brennan, and Marshall, their opinions do not suggest that reporting requirements are presumptively suspect on due process grounds absent an interference with privacy or a lack of legislative power.

B. Objections based on the Fourth and Fifth Amendments. -- When do reporting requirements violate the Fourth and Fifth Amendments? This question also was raised in California Bankers and has been considered in a number of other Supreme Court decisions. In California Bankers, the specific Fourth Amendment issue was whether the reporting requirements of the Bank Secrecy Act relating to foreign and domestic financial transactions invaded the rights of those required to report.

In analyzing the foreign transaction reporting requirements, the Court began by noting that "reporting requirements are by no means per se violations of the Fourth Amendment," citing Flint v. Stone Tracy Co., 220 U.S. 107, 174-76 (1911), which upheld a statute requiring the filing and subsequent publication of a corporate tax return. 416 U.S. at 59, 60. The Court then approved the foreign transaction reporting requirements, citing not only the "plenary authority of Congress to regulate foreign commerce" but the reasonableness of the regulations in light of their statutory purpose. 416 U.S. at 59, 62. Moreover, in doing so, the Court did not take the lower court's position that regulation of foreign transactions is not subject to the same constitutional restraints as domestic affairs. Instead, just as in the due process issue, the Court adhered to the view that connection with a proper statutory purpose is sufficient justification for requiring reporting.

In reviewing the Fourth Amendment aspects of the domestic transaction reporting requirements, the Court dealt only with the impact on the banks, citing United States v. Morton Salt Co., 338 U.S. 632 (1950), for the proposition that:

... neither incorporated nor unincorporated associations can plead an unqualified right to conduct their affairs in secret. Hale v. Henkel 1201 U.S. 431; United States v. White, 322 U.S. 694.

While they may and should have protection from unlawful demands made in the name of public investigation, cf. Federal Trade Comm'n v. American Tobacco Co., 264 U.S. 298, corporations can claim no equality with individuals in the enjoyment of a right to privacy. Cf. United States v. White, supra, 416 U.S. at 21, citing 338 U.S. at 651-652.



Then, following the same rationale as it had applied to foreign transactions, the Court found the regulations were sufficiently related to a tenable congressional determination and upheld the imposition of the domestic transaction reporting requirements on the banks. As to the argument made by bank depositors, the Court found that the ACLU and the individual depositors lacked standing because none of them showed that their transactions were subject to the regulations.

The Fifth Amendment challenges were similarly disposed of. With respect to the banks claiming privilege against self-incrimination against the Bank Secrecy Act's foreign and domestic transaction reporting requirements, the Court ruled that "... the bank plaintiffs, being corporations, have no constitutional privilege against compulsory self-incrimination by virtue of the Fifth Amendment," relying on Hale v. Henkel, 201 U.S. 43 (1906), 416 U.S. at 71. The Court further refused to hear the banks' efforts to assert their depositors' Fifth Amendment rights on the ground that the claims of the depositors were premature and not ripe for hearing.

In the MPLDS context, the California Bankers holdings on the availability of Fourth and Fifth Amendment protections are noteworthy in that the Court: (1) maintained the position that associations and corporations do not enjoy Fifth Amendment rights which might otherwise prevent business disclosures; (2) responded to a corporate Fourth Amendment claim by stating that "corporations can claim no equality with individuals in the enjoyment of a right to privacy" (338 U.S. at 652); and (3) upheld the detailed reporting requirements of the Bank Secrecy Act on the basis that they reasonably pursued a legitimate congressional concern. In particular, the Court's stance toward the rights of corporations is significant, given the piercing of corporate ownership entities envisioned by the model MPLDS discussed in the Introduction to this chapter, and in laws such as the International Investment Survey Act. Nevertheless, the analysis used by the Court in upholding the reporting provisions of the Bank Secrecy Act lends emphasis to the importance of finding a sound jurisdictional basis for any MPLDS enabling legislation and the need for such legislation to carefully articulate its purpose, and for subsequent regulations to serve these objectives in a reasonable manner.

Additionally, some notice should be taken of the views of the majority in California Bankers on the question of whether individuals, whose affairs become accessible because others must keep records and report, have any constitutionally protected interests under the Fourth and Fifth Amendments. With respect to the maintenance of records, the California Bankers Court distinguishes between requiring records to be kept and disclosure of the records, holding that requiring records alone does not amount to a seizure so as to enable the subject to invoke the Fourth Amendment. Insofar as a Fifth Amendment challenge on the basis of the privilege against self-incrimination is concerned, the majority

also refused to view recordkeeping alone as a violation of the privilege. The same approach more or less was taken with respect to reporting requirements. Simply put, the California Bankers majority says that the Fourth and Fifth Amendments confer no rights to challenge a data gathering system unless the "seizure" of information is unreasonable in the case of the Fourth Amendment or unless a controversy arises in which the Fifth Amendment claim of privilege against self-incrimination may be properly asserted.

In contrast, the dissenters, Justices Douglas, Brennan, and Marshall, saw substantive infirmities in the data gathering itself. Justice Douglas characterized the recordkeeping and reporting requirements as a "sledgehammer approach" and an invasion of privacy. He also agreed with Justice Brennan, who concluded that the discretion given to the Secretary of the Treasury was an unconstitutional delegation of power by Congress. Justice Marshall in no uncertain terms viewed the recordkeeping as a "massive and indiscriminate search and seizure, inconsistent with the principles behind the [Fourth] Amendment." In a concurring opinion, Justices Powell and Blackmun warned of the potential for abuse where access to information about a person's financial transactions is not subject to judicial review.

Thus, although the impact of reporting and recordkeeping by others on the individuals whose affairs are involved was not decided in California Bankers, the issues were aired. And, in United States v. Miller, 416 U.S. 435 (1976), the Court resolved one such issue by holding that a depositor has no protectable Fourth Amendment interest in records which his bank is obligated to maintain under the Bank Secrecy Act.<sup>3/</sup> In this

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<sup>3/</sup> The impact of Miller has since been limited by Congress with respect to both IRS summonses and to financial records kept by financial institutions pursuant to the Bank Secrecy Act. The Tax Reform Act of 1976 grants the customer the right to be notified of the request for information by the Service and to stay compliance until a court order is obtained authorizing the examination of the records. 26 U.S.C. §7609. Title XI of The Financial Institutions Regulatory and Interest Rate Control Act of 1978, P.L. 95-630, is an explicit Congressional response to the holding in Miller that a customer of a financial institution has no standing under the Constitution to contest government access to financial records. House Report 95-1383 states that Title XI of the Act, known as the "Rights to Financial Privacy Act of 1978," "is intended to protect the customers of financial institutions from unwarranted intrusions into their records while at the same time permitting legitimate law enforcement activity." See U.S. Code & Ad. News, 95th Cong., 2nd Sess., No. 12E, p. 9484 (Jan. 1979). The law attempts to achieve this goal by requiring that individual customers be given both notice and a right to challenge Federal agency requests for bank records. There are exceptions from the status notice requirements where immediate notification to the customers would endanger any person, result in flight from prosecution, etc. There are provisions for payment of actual damages, punitive damages, and attorneys' fees to customers whose rights under the Act have been violated.



case, Miller's bank records were subpoenaed by a grand jury in connection with a whiskey tax violation.

In disposing of the case solely on the basis of lack of any Fourth Amendment interest, the Court first noted that the documents subpoenaed were not Miller's private papers, but the business records of the bank. Miller, on the other hand, had urged that he enjoyed a Fourth Amendment interest in the records because they were merely copies of personal records in which he had a reasonable expectation of privacy, and because they were made available to the banks for a limited purpose. The Court responded that the documents contained only information voluntarily conveyed to the banks and exposed to bank employees in the ordinary course of business and held there could be no expectation of privacy in such a situation. Indeed, the Court said that

The depositor takes the risk, in revealing his affairs to another, that the information will be conveyed by that person to the Government. United States v. White, 401 U.S. 745, 751-752 (1971). This Court has held repeatedly that the Fourth Amendment does not prohibit the obtaining of information revealed to a third party and conveyed by him to Government authorities, even if the information is revealed or the assumption that it will be used only for a limited purpose and the confidence placed in the third party will not be betrayed. Id. at 752; Hoff v. United States, 385 U.S. at 302; Lopez v. United States, 373 U.S. 427 (1963).

Hence, relative to obtaining MPLDS data, Miller indicates that a beneficial owner at least could not claim a constitutional right to privacy in information supplied to a third party required to report its transactions pursuant to MPLDS legislation; however, the disclosure might enjoy legislatively created protection under laws such as the "Right to Financial Privacy Act of 1978," discussed in note 3, supra.

However, California Bankers and Miller did not reach the question of whether legislative action requiring beneficial owners to disclose their interests in the MPLDS environment is free from constitutional doubt. This is perhaps the most delicate question raised by the MPLDS. In terms of who might be entitled to refuse, as indicated above, corporations and associations may not contend that such disclosures are per se violations of their Fourth Amendment rights. See California Bankers, supra at pp. 59, 60. There are additional historical reasons why a court would not be inclined to strike a statutory corporate ownership disclosure requirement. The right to be a corporation is not a natural

or civil right, and the general rule is that the creation of corporations is dependent on the consent of the sovereign power. See discussion in Fletcher, Cyclopedia of the Law of Private Corporations, §113. It follows that

In imposing prerequisite conditions a state legislature does not offend those provisions of the Federal Constitution relating to privilege and immunities of citizens, since citizens have no privilege to be incorporated in terms other than the state laws impose, or any immunity from those laws. Fletcher, supra, at §114.

As a result, it is not surprising that courts have held that States have the power to compel corporations to render reports to it for proper purposes. See Florida Telephone Corporation v. State of Florida ex rel. Peninsular Telephone Company, 111 So.2d 677 (Fla. App. 1959); State v. Sunset Ditch Co., 48 NM 17, 145 P.2d 219 (1944); Fletcher, supra, §2260.

The question of whether joint ventures or general partnerships could be forced to disclose what property they own or who controls them is more difficult, since these business vehicles often are common law entities, as opposed to creatures of statute. While State legislation requiring the registration of partnership or joint venture interests in real estate might be one approach to destroying any privilege of the members of these entities to resist disclosure, is that the only alternative?

This question is only an offshoot of the basic issue of whether individuals could invoke constitutional grounds to resist disclosure of what land they own. In this area, the limits on Fifth Amendment protections suggest the answer. Plainly, unless the recordkeeping regulations are aimed primarily at exposing crime occurring on an ongoing basis,<sup>4/</sup> the legislature can require records to be kept so that there may be suitable information on transactions which are appropriate subjects of governmental regulation. Consequently, individuals can be forced to produce records which are required by law to be kept and the forced production does not violate the constitutional privilege against self-incrimination.<sup>5/</sup> Restating this doctrine, often referred to as the

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<sup>4/</sup> Marchetti v. United States, 390 U.S. 39 (1968); Grosso v. United States, 390 U.S. 62 (1968); Leary v. United States, 395 U.S. 6 (1969).

<sup>5/</sup> United States v. Silverman, 449 F.2d 1341 (2d Cir. 1971), cert. den. 405 U.S. 918 (1972); In re Grand Jury Subpoena to Custodian of Records, Mid-City Realty Company, 497 F.2d 218 (6th Cir.), cert. den. 419 U.S. 1009 (1974); Wilson v. United States, 221 U.S. 361 (1911); Shapiro v. United States, 335 U.S. 1 (1948); 8 Wigmore on Evidence, §2259C (McNaughton Rev.).



"required records" doctrine, if the record keeping statute itself is valid, compelled production of records kept pursuant to the statute will withstand Fifth Amendment challenges.

However, the doctrine is not unqualified. In another case involving the Bank Secrecy Act, United States v. San Juan, 405 F. Supp. 686 (D. Vt. 1975) rev'd on other grounds, 545 F.2d 314 (2d Cir. 1976), it was emphasized that the "required records" doctrine applies only to regulatory statutes and records "ordinarily kept and that have assumed public aspects." The same qualification was forcefully pointed out by Justice Douglas in his California Bankers dissent. Faced with one of the questions not reached in California Bankers, the San Juan court refused to go beyond this position. It decided that the foreign transaction reporting requirements of the Bank Secrecy Act do not per se violate an individual's Fifth Amendment privilege where foreign transactions are involved and then found the "possibility" of incrimination in that case was not enough to strike down the requirements.

Interestingly enough, an effort to assert the Fifth Amendment to avoid disclosure of the financial affairs of a real estate venture has been considered recently. At issue was whether tenants in common of real estate who conduct financial transactions related to the property under an assumed name can claim the Fifth Amendment privilege against compulsory self-incrimination with respect to records of the transactions.<sup>6/</sup> The tenants in common were organized only to the point of establishing a joint bank account under the name of G & S Investment. The income and expenses of the real estate were administered through the bank account. The issue arose when a grand jury subpoena commanded the production of the records of G & S Investment in the investigation of alleged fraudulent claims for medicare benefits by nursing homes. One of the tenants in common, Schiffman, claimed the Fifth Amendment privilege in refusing to produce the records. The court held that, to the extent that Schiffman elected to join with the other tenants in conducting the financial transactions related to the real estate under the assumed name of G & S Investments, he withdrew the records of such transactions from the privilege against compulsory production.

In sum, the "required records" exception to the privilege against self-incrimination, the absence of such privilege for corporations, and application of the Schiffman rule to common law partnership and joint venture interests in real estate strongly suggest that Fifth Amendment objections to the mandatory reporting of beneficial ownership under an otherwise valid MPLDS statute would be without basis.

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<sup>6/</sup> In re Grand Jury Proceedings; Appeal of Schiffman, 576 F.2d 703 (6th Cir.), cert. den. 99 S. Ct. 106 (1978).

C. First Amendment Challenge. -- Parties who are forced to disclose ownership interests because of the MPLDS may claim these disclosures "chill" their First Amendment rights to associate freely and conduct business in our society. Perhaps the most well-known case where a plaintiff class urged this theory is NAACP v. Alabama, 257 U.S. 449 (1958), where Alabama had attempted to order the civil rights organization to produce its list of members pursuant to discovery in a suit to enjoin the NAACP from conducting activity in the state. The Court found that Alabama had not shown controlling justification for the deterrent effect on the free enjoyment of the right to associate which disclosure of the membership list would be likely to have.

A similar First Amendment claim was urged unsuccessfully by the ACLU against the reporting requirements of the Bank Secrecy Act in California Bankers, supra. The Court's response there indicates that NAACP v. Alabama may be unique, primarily due to the social context in which it was heard. Noting that no per se rule forbids disclosure, the California Bankers decision held that a First Amendment claim could not be entertained without evidence of impending harm to associational rights:

This Court, in the absence of a concrete fact situation in which competing associational and governmental interests can be weighed, is simply not in a position to determine whether an effort to compel disclosure of such  $\frac{1}{4}$ financial $\frac{1}{2}$  records would or would not be barred by cases such as NAACP v. Alabama, supra. The threat to any First Amendment rights of the ACLU or its members from the mere existence of records in the hands of a bank is a good deal more remote than the threat assertedly posed by the Army's system of compilation and distribution of information which we declined to adjudicate in Laird v. Tatum, 408 U.S. 1 (1972). 416 U.S. at 56, 57.

In Laird v. Tatum, supra, plaintiffs claimed that the U.S. Army's domestic surveillance of civilian political activity chilled their First Amendment rights. The Court responded that the mere existence of a data-gathering system does not constitute a justiciable controversy, absent a showing of objective harm or of specific future harm.

Reasoning from these cases, it is unlikely that parties to real estate transactions would be successful in convincing the Supreme Court that the disclosure of their identities would subject them to objective harm or future harm. In NAACP v. Alabama, there existed a reasonable expectation that disclosure would result in the oppression of an association devoted to advancing the rights of racial minorities. Most real estate developers would not fall within such a classification. Nor, at present, is there any movement afoot in the land to oppress or persecute property holders.



Moreover, it is questionable whether property holders could seek protection from the consequences of MPLDS ownership disclosures upon First Amendment associational rights as usually defined. Presumably, parties to real estate transactions are seeking absolute freedom to associate for purely business, as opposed to political purposes. Presumably, the courts are more eager to protect political rights under the color of the First Amendment than any right to engage in commerce.

Another recent case where First Amendment disclosure issues were decided on the merits is Buckley v. Valeo, 424 U.S. 1 (1975), where the constitutionality of the Federal Election Campaign Act of 1971 was challenged. Plaintiffs, who included a candidate for the Presidency of the United States, a U.S. senator up for reelection, and a political contributor, contended that (i) the contribution and expenditure limitations and (ii) the disclosure, recordkeeping, and reporting requirements of the Act violated the First Amendment freedoms of communication and association. The Court upheld the validity of the recordkeeping, reporting, contribution limitation, and disclosure provisions of the Act. The expenditure ceilings were invalidated as a restraint on political speech. In upholding the Act's rigorous disclosure provisions, the Court examined: (1) the nature of the substantive governmental interest in informing the electorate and preventing the corruption of the political process; and (2) whether the procedures of the Act are over-broad, insofar as they apply to minor parties and independent candidates.

Buckley v. Valeo's significance to the MPLDS analysis is that rigorous disclosure requirements--extending to campaign contributions in amounts as small as \$10--withstood a First Amendment attack even though they affected a right as basic as the right to associate and advocate on behalf of political candidates. Since the information to be disclosed in connection with the MPLDS rarely is political in nature, it is unlikely that, if challenged on First Amendment grounds, the liberal attitude of the Court toward extensive disclosure requirements exemplified in Buckley would change.

D. Constitutional rights to privacy. -- In discussing the constitutional aspects of MPLDS reporting and disclosure requirements thus far, the terrain has been familiar. Challenges to governmental activity based on due process, unreasonable search and seizure, self-incrimination, and infringement of First Amendment liberties need almost no introduction, and a comprehensive and amazingly consistent body of law has developed as the courts have confronted the ingenious arguments of citizenry resisting their government. Relatively new to the scene, however, is the claim that privacy is a fundamental aspect of liberty or, more succinctly, the claim of the "right to be left alone." In this context, a challenge to the MPLDS might well be expected if the owner of the land perceived publicity of his ownership to be a threat to his reputation, as in the case of a slum landlord, or to be a revelation of his wealth, as in the case of a miser. Would such a plaintiff prevail?

The Constitution does not explicitly mention any right to privacy. But the Supreme Court has given recognition to certain areas of privacy despite the fact that, until recently, the Court had been unable to agree on a common constitutional basis.<sup>7/</sup> In Griswold v. Connecticut, 381 U.S. 479 (1964), Justice Douglas and four others agreed that the right arose from a "penumbra" of the First, Fourth, Fifth, and Ninth Amendments, with Justices Goldberg and Harlan maintaining strong theoretical objections to this viewpoint. A footnote in Whalen v. Roe, 429 U.S. 589, 599 at n. 23, asserts that the case of Roe v. Wade, 410 U.S. 113 at 152, 153, establishes that the "'right' of privacy is founded in the Fourteenth Amendment's concept of personal liberty." A review of the concurring opinions of Justices Douglas and Stewart in Roe v. Wade, however, would indicate that two of the seven justices joining in the Court's opinion still had differing views as to the precise basis for the right to privacy.

Whatever its constitutional foundation, the right to privacy has been articulated frequently enough in recent years that its practical parameters may be understood. Furthermore, the disclosure requirements upheld in several of the cases fall within "zones of privacy" which are much more intimate than the matters embraced by the MPLDS.

For example, in Planned Parenthood of Missouri v. Danforth, 428 U.S. 52 (1976), the reporting and recordkeeping requirements of a Missouri statute regulating abortion were upheld. The provisions are as follows:

Section 10. 1. Every health facility and physician shall be supplied with forms promulgated by the division of health, the purpose and function of which shall be the preservation of maternal health and life by adding to the sum of medical knowledge through the compilation of relevant maternal health and life data and to monitor all abortions performed to assure that they are done only under and in accordance with the provisions of the law. [Emphasis added]

2. The forms shall be provided by the state division of health.

3. All information obtained by a physician, hospital, clinic or other health facility from a patient for the purpose of preparing reports to the division of health under this section or reports received by the division of health shall be confidential and shall be used only for statistical purposes. Such records, however, may be inspected and health data acquired by local, state or national public health officers.

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<sup>7/</sup> See discussion of early case law in Roe v. Wade, 410 U.S. 113 (1972) at 152.



Section 11. All medical records and other documents required to be kept shall be maintained in the permanent files of the health facility in which the abortion was performed for a period of seven years.

Two physicians challenged the constitutionality of sections 10 and 11, contending that the reporting and recordkeeping provisions imposed a burden of regulation which applied to all stages of pregnancy in violation of the holding in Roe v. Wade, 410 U.S. 113 (1973). The Court found that sections 10 and 11, "while perhaps approaching impermissible limits, are not constitutionally offensive in themselves." 428 U.S. at 81. It also held that recordkeeping and reporting requirements which are reasonably directed to the preservation of maternal health and which properly respect a patient's confidentiality and privacy are permissible. In addition, the Court noted that, if such recordkeeping is not abused or overdone, it can be useful to the State in protecting the health of female citizens, and it may be a resource that is relevant to decisions involving medical experience and judgment.

In evaluating the significance of this opinion, it should be noted that the particular legislation also had a number of anti-abortion provisions which the Court held unconstitutional. Hence, the recordkeeping and reporting provisions might have been construed as merely another compliance burden designed to discourage abortion. That the Court was not unmindful of this possibility is evident from its admonition that the recordkeeping requirements cannot be "utilized in such a way as to accomplish through the sheer burden of recordkeeping detail, what we have held to be an otherwise unconstitutional restriction." 428 U.S. at 81.

Another aspect of the constitutional ramifications in government data gathering was examined in Whalen v. Roe, 429 U.S. 589 (1977), where the constitutionality of the reporting requirements of the New York State Controlled Substances Act of 1972 was upheld. This legislation was based on the findings of a special commission created by the New York legislature to evaluate the State's drug control laws. The commission found the existing laws deficient in that there was no way to prevent the use of stolen or altered prescriptions, to prevent pharmacists from repeatedly refilling prescriptions, to prevent drug users from obtaining prescriptions from more than one doctor, or to prevent doctors from over-prescribing. The commission also consulted with officials in California and Illinois where central reporting systems were being used.

The resulting statute classified potentially harmful drugs according to several categories. Illegal drugs which are highly abused, have no recognized medical use, and cannot be prescribed were in one class. Another class known as Schedule II drugs consisted of the most dangerous of legitimate drugs. The Act requires that all prescriptions for Schedule II drugs be prepared by the physician in triplicate on an official form. The completed form identifies the prescribing physician; the dispensing pharmacy; the drugs and dosage; and the name, address,

and age of the patient. One copy of the form is retained by the physician, the second by the pharmacist, and the third is forwarded to the New York State Department of Health. A prescription made on an official form may not exceed a 30-day supply and may not be refilled.

Faced with this regulation, suit was filed by a group of patients regularly receiving prescriptions for Schedule II drugs, by doctors who prescribe Schedule II drugs, and by two associations of physicians, to enjoin enforcement of the Act, claiming violation of the constitutional right of privacy and impairment of the right to practice medicine free of unwarranted State interference. Notwithstanding that public disclosure of the identity of patients was expressly prohibited, willful violations being punishable by one year in prison and a \$5,000 fine, plaintiffs claimed that persons in need of treatment with Schedule II drugs would decline such treatment because of their fear that the misuse of the computerized data would cause them to be stigmatized as drug addicts.

The Court found the State's determination that the patient-identification requirement would aid in the enforcement of drug laws was not an unreasonable one. It further concluded that the potential possibilities of invasion of privacy through public disclosure of patient information did not provide a proper ground for attacking the statute as invalid on its face. In reaching that conclusion, it found the record did not support any determination that the security provisions of the statute would be administered improperly. In this connection, it noted that, after the information is recorded on magnetic tapes for processing by a computer, the prescription forms are retained in a vault for a five year period and then destroyed. Moreover, the computer tapes containing the prescription data are to be kept in a locked cabinet, and the system is designed so that no terminal outside the computer room can read or record any information.

Additionally, the Court pointed out that the prior law also had required private information to be disclosed to the authorized employees of the New York Department of Health. Hence, the new statute required neither more disclosure nor imposed more reporting burdens on physicians. But, in outlining what had not been decided, the Court expressed its concern about protecting confidentiality in government information gathering:

A final word about issues we have not decided. We are not unaware of the threat to privacy implicit in the accumulation of vast amounts of personal information in computerized data banks or other massive government files. The collection of taxes, the distribution of welfare and social security benefit, the supervision of public health, the direction of our Armed Forces and the enforcement of the criminal laws, all require the orderly preservation of great quantities of information, much of which is personal if disclosed. The right to collect and use such



data for public purposes is typically accompanied by a concomitant statutory or regulatory duty to avoid unwarranted disclosures. Recognizing that in some circumstances that duty arguably has its roots in the Constitution, nevertheless New York's statutory scheme, and its implementing administrative procedures, evidence a proper concern with, and protection of, the individual's interest in privacy. We therefore need not, and do not, decide any question which might be presented by the unwarranted disclosure of accumulated private data--whether intentional or unintentional--or by a system that did not contain comparable security provisions. We simply hold that this record does not establish an invasion of any right or liberty protected by the Fourteenth Amendment. 429 U.S. at 605. (Emphasis added.)

While both the Danforth and Whalen decisions deal with a "zone of privacy," which ordinarily is considered to be highly intimate, it is notable that the Court was still willing to permit the aggregation of data, provided that the disclosure requirements were reasonably directed toward a public purpose and safeguards against unwarranted disclosures were assured. What are the implications of these cases for the MPLDS?

Given that the MPLDS will not contain information as sensitive as medical information, it is unlikely the data collection activity would be subject to the rigid scrutiny applied by the Court in Danforth and Whalen. Likewise, it is difficult to find a highly personal impact that would support a broad "expectation of privacy" in conducting real estate transactions. First of all, the transfer of the property interest is voluntarily revealed to protect the interest holder's own priority: i.e., deeds, mortgages, liens, memoranda of leases. Secondly, the States traditionally have required certain disclosures of the financial basis of real estate transactions for the purpose of taxation: i.e., the real property transfer declarations and tax stamps required as a pre-condition to recording. Thirdly, many of the parties dealing in real estate are entities which exist at law only by merit of state enactments: i.e., corporations and limited partnerships, whose rights to privacy may indeed be slim.

With these observations in mind, is there an infringement of personal liberty if an individual must disclose his interests in real estate or in non-corporate entities that own real estate, such as general partnerships and joint ventures. Arguably, there is a greater expectation of privacy when business is transacted in this manner. When faced with competing interests, the courts are inclined to weigh disclosure requirements against the governmental interests that are served. On those terms, the claim of privacy faces strong competition. Real estate is a highly visible asset whose use and misuse has significant

social ramifications. For instance, a negligent property owner can create conditions unsafe to the public health. Where ownership rights are not disclosed, it is more difficult for the government to sue to enjoin housing or building code violations or to punish wrongdoers even where land is unimproved, there are nonetheless legitimate governmental interests in ownership disclosure. Real property is subject to taxation. Where taxes are not paid, most State laws provide that the parcel ultimately may be sold at a judicial sale or that the property owner may be sued personally so that the State may satisfy its lien. Where taxes and penalties have accrued for so long that they exceed the value of the property, the only true satisfaction available to the State is to sue the owner in personam and attach his other assets--and to sue an owner in this fashion requires disclosure of his identity. The inability to identify property owners can therefore hinder State efforts to deal with two very difficult problems in older urban areas: code enforcement and real property tax delinquency. Reasoning from these examples, there undoubtedly is a legitimate governmental interest in the disclosure of the details of land ownership, even though many of the disclosures "may never be of utility for law enforcement. . . .", as California Bankers, supra at 49, n. 21, observed.

Moreover, even if a court were to rule there is a reasonable expectation that the identity of the true owner or participant in joint ventures or limited partnerships should not be public knowledge, Danforth and Whalen suggest that MPLDS reporting requirements would stand if the recordkeeping requirements are not abused by the State, or if the MPLDS protects unwarranted disclosure to the general public. Thus, the privacy issue, while worth considering, is not necessarily crucial in assessing the feasibility of the MPLDS.

Conclusion. -- Despite rumors of public restlessness with "bureaucratic red tape," the U.S. Supreme Court has not been quick to strike legislation requiring the disclosure of activities pertinent to bank transactions, campaign contributions, abortions, or drug usage. In order to prevail on constitutional grounds, opponents of the MPLDS would have to persuade the courts that the MPLDS disclosure and recordkeeping requirements are so onerous that the system cannot be upheld on the basis of precedents such as California Bankers, Miller, Buckley v. Valeo, Griswold, Danforth, and Whalen. Assuming a carefully designed MPLDS, this would be a considerable burden given the modern Court's liberal attitude toward disclosure and reporting requirements.

## II. Statutory Considerations.

As the foregoing discussion indicates, a number of recent challenges to the constitutionality of government data gathering have been rebuked by the U.S. Supreme Court. In addition to constitutional



considerations,<sup>8/</sup> a number of recently enacted "privacy acts" may be pertinent in assessing the disclosure requirements contemplated by the MPLDS.

A. Federal statutes and the survey MPLDS. -- The impact of Federal legislation dealing with aspects of privacy cannot be ignored if the MPLDS takes the form of a "survey" system conducted by a Federal agency. Indeed, portions of the legislation could conceivably constrain the technical design of the system. The provisions, which have been set out in full below, need to be read in their entirety to grasp the possibilities of collision between the Privacy and Freedom of Information Acts and the MPLDS.

1. The Federal Privacy Act. -- Under the definitions provided in the Federal Privacy Act, 5 U.S.C. §552a, et seq., the surveying agency would fall within the definition of a "federal agency" contained in 5 U.S.C. §552(c). The records maintained by the MPLDS agency also would meet the definition of "record," since the term "record" means "any item, collection, or grouping of information about an individual that is maintained by an agency, including, but not limited to, his education, financial transactions, medical history, and criminal or employment history and that contains his name, or the identifying number, symbol, or other identifying particular assigned to the individual, such as a finger or voice print or a photograph." 5 U.S.C. §552(a)(4). Thus, if the MPLDS data includes any such information as to the owner of property, the definition of "record" would be met. Whether the critical definition of "system of records" would be met depends on whether the information in the MPLDS can be retrieved by the parcel identifier or by the name or some identifying particular of the property owner. The term "system of records" means a "group of any records under the control of any agency from which information is retrieved by the name of the individual or by some identifying number, symbol, or other identifying particular assigned to the individual." 5 U.S.C. §552a(a)(5). The main provisions of the Act apply only to agencies that maintain such a system of records.<sup>9/</sup>

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<sup>8/</sup> While the individual liberties enumerated in State constitutions often are worded similarly to that of the Federal Bill of Rights, State courts are free to construe these provisions more liberally than the U.S. Supreme Court. For a discussion of how State courts might construe privacy issues, see "Toward a Right of Privacy as a Matter of State Constitutional Law," 5 Fla. St. U. L. Rev. 631 (1977).

<sup>9/</sup> See §552a(a) (requiring agencies to keep records of to whom information has been disclosed); §552a(b) (requiring the consent of the individual prior to the disclosure unless the disclosure is within certain exceptions); §552a(d) (granting individuals access to their own records); §552a(e) (imposing certain responsibilities relating to recordkeeping upon agencies); and §552a(f) (requiring agencies to develop regulations consistent with the Privacy Act).

In terms of permitted data gathering, Federal agencies are free to compile information, provided that the provisions of §552a(e) are met:

(e) Agency requirements

Each agency that maintains a system of records shall --

(1) maintain in its records only such information about an individual as is relevant and necessary to accomplish a purpose of the agency required to be accomplished by statute or by executive order of the President;

(2) collect information to the greatest extent practicable directly from the subject individual when the information may result in adverse determinations about an individual's rights, benefits, and privileges under Federal programs;

(3) inform each individual whom it asks to supply information, on the form which it uses to collect the information or on a separate form that can be retained by the individual --

(A) the authority (whether granted by statute, or by executive order of the President) which authorizes the solicitation of the information and whether disclosure of such information is mandatory or voluntary;

(B) the principal purpose or purposes for which the information is intended to be used;

(C) the routine uses which may be made of the information, as published pursuant to paragraph (4)(D) of this subsection; and

(D) the effects on him, if any, of not providing all or any part of the requested information;

(4) subject to the provisions of paragraph (11) of this subsection, publish in the Federal Register at least annually a notice of the existence and character of the system of records, which notice shall include --

(A) the name and location of the system;

(B) the categories of individuals on whom records are maintained in the system;

(C) the categories of records maintained in the system;

(D) each routine use of the records contained in the system, including the categories of users and the purpose of such use;

(E) the policies and practices of the agency regarding storage, retrievability, access controls, retention, and disposal of the records;

(F) the title and business address of the agency official who is responsible for the system of records;



- (G) the agency procedures whereby an individual can be notified at his request if the system of records contains a record pertaining to him;
  - (H) the agency procedures whereby an individual can be notified at his request how he can gain access to any record pertaining to him contained in the system of records, and how he can contest its content; and
  - (I) the categories of sources of records in the system;
- (5) maintain all records which are used by the agency in making any determination about any individual with such accuracy, relevance, timeliness, and completeness as is reasonably necessary to assure fairness to the individual in the determination;
  - (6) prior to disseminating any record about an individual to any person other than an agency, unless the dissemination is made pursuant to subsection (b)(2) of this section, make reasonable efforts to assure that such records are accurate, complete, timely, and relevant for agency purposes;
  - (7) maintain no record describing how any individual exercises rights guaranteed by the First Amendment unless expressly authorized by statute or by the individual about whom the record is maintained or unless pertinent to and within the scope of an authorized law enforcement activity;
  - (8) make reasonable efforts to serve notice on an individual when any record on such individual is made available to any person under compulsory legal process when such process becomes a matter of public record;
  - (9) establish rules of conduct for persons involved in the design, development, operation, or maintenance of any system of records, or in maintaining any record, and instruct each such person with respect to such rules and the requirements of this section, including any other rules and procedures adopted pursuant to this section and the penalties for non-compliance;
  - (10) establish appropriate administrative, technical, and physical safeguards to insure the security and confidentiality of records and to protect against any anticipated threats or hazards to their security or integrity which could result in substantial harm, embarrassment, inconvenience, or unfairness to any individual on whom information is maintained; and
  - (11) at least 30 days prior to publication of information under paragraph (4)(D) of this subsection, publish in the Federal Register notice of any new

use or intended use of the information in the system,  
and provide an opportunity for interested persons to  
submit written data, views, or arguments to the agency.

Applying the foregoing to the survey MPLDS, the requirement found in (1) that an agency keep only those records necessary to fulfill its purpose would appear to be sufficiently elastic, assuming that the MPLDS "survey system" enabling act contains language expressing Congressional intent. Similarly, the MPLDS agency presumably could cope with the administrative burdens imposed by (3),(6),(9), and (11).

However, the requirements of (2), (4), and (8) would appear to be very cumbersome in the operation of a "survey-system" MPLDS. The difficulties they pose may necessitate amendment of the Act to exempt the MPLDS, should the system qualify as a "system of records" as discussed above.

It should also be noted how under (5) and (10) agencies are directed to maintain records "with such accuracy, relevance, timeliness, and completeness as is reasonably necessary to assure fairness to the individual...." and to establish rules of conduct and regulations to guarantee the confidentiality of records and the enforcement of the provisions of the Act. As a result, the MPLDS agency maintaining the "survey system" seemingly would be obligated to meet a rather inappropriate duty of care.

Of less moment is the admonition in (7) that no agency shall maintain a record "describing how any individual exercises rights guaranteed by the First Amendment unless expressly authorized by statute or ..." pertinent to law enforcement activity. As discussed above, real estate ownership data ordinarily are not related to the exercise of First Amendment rights. In any event, even if individuals or groups were to purchase property for the sole purpose of congregating to exercise their freedom to associate, the MPLDS disclosure of ownership does not describe how anyone is exercising First Amendment rights within the terms of (7). Rather, the disclosure relates solely to the ownership of interests in real property, and not to how the property is used in the exercise of First Amendment rights in any meaningful detail.

Putting the collection restrictions aside, what are the implications of the Privacy Act on use of MPLDS survey data. In this regard, the Privacy Act prohibits the disclosure of records contained in a "system of records" to any person or agency without the prior written assent of the individual, unless disclosure of the written record is

- (1) to those officers and employees of the agency who have a need for the record in the performance of their duties;
- (2) required under section 552 of this title;
- !Freedom of Information Act1
- (3) for a routine use as defined in subsection (a)(7) of this section and described under subsection (3)(4)(D) of this section;



(4) to the Bureau of the Census for purposes of planning or carrying out a census or survey or related activity pursuant to the provisions of title 13;

(5) to a recipient who has provided the agency with advance adequate written assurance that the record will be used solely as a statistical research or reporting record, and the record is to be transferred in a form that is not individually identifiable;

(6) to the National Archives of the United States as a record which has sufficient historical or other value to warrant its continued preservation by the United States Government, or for evaluation by the Administrator of General Services or his designee to determine whether the record has such value;

(7) to another agency or to an instrumentality of any governmental jurisdiction within or under the control of the United States for a civil or criminal law enforcement activity if the activity is authorized by law, and if the head of the agency or instrumentality has made a written request to the agency which maintains the record specifying the particular portion desired and the law enforcement activity for which the record is sought;

(8) to a person pursuant to a showing of compelling circumstances affecting the health or safety of an individual if upon such disclosure notification is transmitted to the last known address of such individual;

(9) to either House of Congress, or, to the extent of matter within its jurisdiction, any committee or subcommittee of Congress or subcommittee of any such joint committee;

(10) to the Comptroller General, or any of his authorized representatives, in the course of the performance of the duties of the General Accounting Office; or

(11) pursuant to the order of a court of competent jurisdiction.

5 U.S.C. §552a(b). Exception (5) is significant to the "survey" MPLDS in that it exempts information which is used for statistical purposes only. But it is questionable whether this exception would be broad enough to serve the "survey" MPLDS if one of its functions were to provide the identity of foreign owners pursuant to the International Investment Survey Act of 1976. Thus, if foreign or U.S. ownership data are desired in situations not exempt pursuant to §552a(b), amending the Privacy Act would be a prerequisite.

Summarizing the caveats, the MPLDS agency would be exempt from the heart of the Privacy Act if the system remains parcel-specific as opposed to individual-specific. But once the system is capable of retrieving information on an individual by means of an identifying number or symbol, and if the information sought is the type which need not be disclosed under the Freedom of Information Act, then the MPLDS becomes a "system of records," subjecting the MPLDS agency to the Privacy Act's disclosure procedures and to some rather loosely defined standards of care. To the extent the Congress finds these requirements cumbersome or inappropriate, the Privacy Act would have to be accommodated in providing for the MPLDS "system of records."

2. Use of social security numbers.--If the MPLDS is "individual-specific" as well as parcel-specific, the use of social security numbers in either a "network" or "survey" MPLDS may be governed by the Federal Privacy Act and the Tax Reform Act of 1976.<sup>10/</sup> The Privacy Act in effect declares that governments cannot request the use of social security numbers for any new purposes.

The operative provision states that no Federal, State, or local government can deny any individual any right, benefit, or privilege provided by law because of his refusal to disclose his social security number. See §552a. The only exception made at the time of enactment was for agencies maintaining a system of records in existence and operating before January 1, 1975. It covered situations where disclosure of numbers was required under statute or regulations adopted prior to such date. Congress subsequently permitted another exception in the Tax Reform Act of 1976 in authorizing States and political subdivisions to require social security numbers for identification purposes from any person affected by any tax, general public assistance, driver's license, or motor vehicle laws.

Reading the Act and tax exception together, the Congressional intent to limit use of social security numbers appears clear. As a result, unless the tax exception were construed to include MPLDS activity because of real property tax input, the use of social security numbers in the MPLDS would appear to require specific authorization if the MPLDS would otherwise provide an individual with a "right, benefit, or privilege." A network MPLDS which replaces traditional land recordation functions would clearly provide such benefits; in the case of the federally-managed survey system, the presence of rights, benefits, or privileges accruing to parties being surveyed appears quite remote.

3. Freedom of the Information Act.-- The Federal Privacy Act coexists with the ostensibly contrary philosophy expressed in the Federal Freedom of Information Act (FOIA), 5 U.S.C. §552. FOIA requires each Federal Agency to publish its "statements of the general course and method by which its

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<sup>10/</sup> It also should be recognized that public concern over the use of the social security number for purposes other than social security has grown with the increased use of these numbers. Mayer, Stephen H., "Privacy and the Social Security Number: Section 1211 of the Tax Reform Act of 1976," 6 Rutgers J. of Computers and Law 221 (1978).



functions area channeled and determined" in the Federal Register, together with its rules and regulations. See §552(a)(1). In addition, Federal agencies are required to make available for public inspection final opinions and orders made in the adjudication of cases, statements of policy which are not published in the Federal Register, administrative staff manuals, and reasonably described records. See §552(a)(2), (3).

While nominally at cross-purposes with each other, the Freedom of Information and Privacy Acts converge in §552a(b)(2) of the Privacy Act, which excludes all disclosures required under the Freedom of Information Act from the restrictions on disclosure mandated by the Privacy Act. However under the Freedom of Information Act, nine exemptions from its general provisions requiring disclosure are permitted:

(b) This section does not apply to matters that are --

- (1)(A) specifically authorized under criteria established by an Executive order to be kept secret in the interest of national defense or foreign policy and (B) are in fact properly classified pursuant to such Executive order;
- (2) related solely to the internal personnel rules and practices of any agency;
- (3) specifically exempted from disclosure by statute (other than section 552b of this title), provided that such statute (A) requires that the matters be withheld from the public in such a manner as to leave no criteria for withholding or refers to particular types of matters to be withheld;
- (4) trade secrets and commercial or financial information obtained from a person and privileged or confidential;
- (5) inter-agency or intra-agency memorandums or letters which would not be available by law to a party other than an agency in litigation with the agency;
- (6) personnel and medical files and similar files the disclosure of which would constitute a clearly unwarranted invasion of personal privacy;
- (7) investigatory records compiled for law enforcement purposes, but only to the extent that the production of such records would (A) interfere with enforcement proceedings, (B) deprive a person of a right to a fair trial or an impartial adjudication, (C) constitute an unwarranted invasion of personal privacy, (D) disclose the identity of a confidential source and, in the case of a record compiled by a criminal law enforcement authority in

the course of a criminal investigation, or by an agency conducting a lawful national security intelligence investigation, confidential information furnished only by the confidential source, (E) disclose investigative techniques and procedures, or (F) endanger the life or physical safety of law enforcement personnel;

(8) contained in or related to examination, operating, or condition reports prepared by, on behalf of, or for the use of agency responsible for the regulation or supervision of financial institutions; or

(9) geological and geophysical information and data, including maps, concerning wells.

Thus, all of the information listed above also would be subject to the restrictions on disclosure contained in the Privacy Act.

In the MPLDS context, exception (4) should be noted in that little indication is given as to what "commercial or financial information" is deemed "privileged or confidential." Similarly, exceptions (6) and (7) refer cryptically to the "unwarranted invasion of personal privacy." As discussed above, most MPLDS data would not be within the "zone of privacy" heretofore recognized by the courts. And the Freedom of Information Act does not appear to provide a new statutory definition of privacy, but instead echoes general concepts evolved through the judiciary. However, the agency bears the initial responsibility for determining what is privileged or private data since such data can be released only pursuant to Privacy Act disclosure procedures.

Exception (9) has interesting implications in that it excludes "geological and geophysical information and data ... concerning wells." Both oil and water wells would appear to be included. As a result, the Federal agency administering the "survey-system" MPLDS could not be compelled to disclose such data under the Freedom of Information Act as it now reads without pursuing Privacy Act disclosure procedures.

Conclusion. -- The thicket created by Federal "privacy" legislation certainly must be considered in evaluating the survey MPLDS and how it might be implemented. Although the above discussion is directed toward use of data obtained directly from citizens, equally tangled disputes can be anticipated if the Federal survey attempts to access other agencies' files.

In this area, recent cases before the Supreme Court indicate that disclosure and access to information in the hands of government may be attaining the status of a fundamental right. See Chrysler Corp. v. Brown, 47 U.S. L.W. 4434 (April 18, 1979) and Forsham v. Califano, 587 F.2d 1128 (D.C. Cir. (1978), cert. granted 47 U.S. L.W. 3739 (1979)). Chrysler Corp v. Brown



also is noteworthy because the Court held that the statutory exemptions from disclosure contained in the Freedom of Information Act protect the privacy interests of a private party submitting information to a Federal agency "only to the extent that this [privacy] interest is endorsed by the agency collecting the information." If the agency does not agree that the information is within an FOIA statutory exemption, the FOIA exemptions do not serve as "mandatory bars to public disclosure."

B. State privacy laws and the Network MPLDS. -- A "network-system" MPLDS presumably would strive to provide certain information on a uniform basis throughout the States. The existence of privacy acts in five states, however, has the potential of hindering this objective as well as presenting an obstacle to adoption in the states which have the acts. A brief review of these statutory attempts to define and preserve privacy rights in data is therefore in order.

1. Utah. -- Under the Utah statute,<sup>11</sup> "data on individuals" means data kept by the State government including, but not limited to, data by which it is possible to identify with reasonable certainty the person to whom the information pertains. As a result, the "reasonable certainty" threshold requirement for what data or records are covered by the Act is more liberally defined than under the Federal Privacy Act since an identifier is not required. Data on individuals are further classified into public data, confidential data, and private data. The State records committee determines which category the information collected and maintained by the State government should be assigned to. Public data are open to the public. Confidential data are available to the appropriate agencies for uses defined in the Act, to others by express consent of the individual, but not to the individual himself. The availability of private data is also available to the individual affected. The Secretary of State is to identify responsible authorities in State government involved in the collection or use of data on individuals. The responsible authorities have several duties for all data: (1) they are required to file in writing with the Secretary of State the purposes for which the data are (or are to be) collected and used, and the report is made a public record; (2) they are required to inform each individual who is requested to supply confidential or private data as to the intended uses of the data; if the individual refuses to supply it, the authority must inform him of any known consequence arising from that refusal; (3) confidential and private data must not be used other than for the stated purposes nor can it be disclosed to any person without the individual's consent; (4) an individual must be informed whether he is the subject of any data and the content and meaning of it, and must be shown the data without charge, upon request to the Secretary of State; (5) an individual has the right to contest the accuracy and completeness of any data about him. See Utah Stat. Ann. § 63-50-7.

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<sup>11</sup>/"Utah Information Practices Act," Utah Code Ann. § 63-50

2. Minnesota. -- The Minnesota Act 12/ provides that the collection and storage of public, private, or confidential data on individuals and the use and dissemination of private and confidential data on individuals shall be limited to that necessary for the administration and management of programs specifically authorized by the legislature, local governing body, or mandated by the Federal Government. These sections envision a narrower area of possible data to be collected and used than does the Federal Privacy Act. The Act further provides that private or confidential data on individuals shall not be used, collected, stored, or disseminated for any purposes other than those stated to an individual at the time of collection. The Act also provides that, similar to the Utah Act, the responsible authority shall establish procedures and safeguards to ensure that data on individuals are accurate, complete, and current, with emphasis on the data security requirements of computerized files.

An individual asked to supply private or confidential data concerning himself must be informed of the following four items: (1) the purpose and intended use of the requested data within the collecting State agency, political subdivision, or statewide system; (2) whether he may refuse or is legally required to supply the requested data; (3) any known consequence arising from his supplying or refusing to supply private or confidential data; and (4) the identity of other persons or entities authorized by state or federal law to receive the data. See Minn. Stat. Ann. § 15.165. The Act thus provides rights to individuals when the collecting body is a political subdivision, as well as the State. Similar to the Utah statute, an individual has the right to be informed whether he is the subject of stored data, the right to be shown the data, and the right to contest the accuracy of it.

The Minnesota Act goes a step further than the Utah Act in extending the provisions not merely to State systems of data, but to local governing bodies and political subdivision.

3. Arkansas. -- The Arkansas Act 13/ is similar to the Federal Act in that the threshold requirement of "personal information" means any information that, by some specific means of identification, can identify the person to whom the information pertains. The rights of persons on whom information is stored and the responsibilities of the responsible authorities are set out in one section. See Ark. Stat. Ann. § 16-806. Responsible authority is defined at the State level and at the political subdivision level. The purpose for which personal information is col-

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12/ Minn. Stat. Ann. § 15.1641 et seq.

13/ "Information Practices Act", Ark, Stat. Ann. § 16-801 et seq.



lected and used must be filed in writing by the responsible authority and is a matter of public record. A person asked to supply personal information must be informed of all intended uses and the purposes to be served, he must be informed whether he may refuse or is legally required to answer, and he must be informed of any known consequence arising from his supplying or refusing to supply the personal information. Information may not be used for any purpose other than those on file unless the individual consents. Similar to Utah and Minnesota, the individual has the right to be informed whether he is the subject of stored information, the contest the accuracy or completeness of the information.

The Arkansas Act follows the Federal Act in granting the individual the right to refuse to disclose his social security number. See Ark. Stat. Ann. § 16-807. No agency of the government of Arkansas or of any local government or political subdivision of Arkansas may deny to any individual any right, benefit, or privilege provided by law because of such refusal. Any individual requested to reveal his or her social security number must be informed whether the disclosure is mandatory or voluntary, by what authority the number is solicited, and what uses will be made of it.

4. Massachusetts. -- The Massachusetts Act 14/ is comparable to the Federal Act in the way that "personal data" and "personal data system" are defined. Personal data is any information concerning an individual which, because of name, identifying number, mark, or description, can be readily associated with an individual; public records, intelligence information, and criminal offender record information are excluded. A personal data system is a system of records containing personal data which are organized so that the data are retrievable by the use of the identity of the data subject. Personal data systems are broken into two types: automated and manual. Duties are imposed on the holders maintaining personal data systems. A holder is the agency which collects, uses, maintains, or disseminates personal data, or any person or entity which contracts with an agency whereby it holds personal data as a part of performing a governmental or public function or purpose. Agencies include those with statewide or local jurisdiction.

The thrust of the Massachusetts Act is to prevent unauthorized access to the personal data. Holders are required to maintain a record of every access to and every use of any personal data by persons or organizations outside of or other than the holder of the data, including the identity of such person and organizations and the intended use. This duty is in addition to the duty of the holder not to allow any other agency or individual not employed by the holder to have access to personal data unless such access is authorized by statute or is approved by the data subject. Individuals are entitled to know whether they are data subjects, to have the data made available to them, and to contest the accuracy and correct it. In addition, the individual data subject has the right to a list of the uses made of his personal data, including the identity of all persons and organizations which have gained access to the data.

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14/ "Fair Information Practices", Mass. Gen Laws Ann. Ch. 66A.

Under the Massachusetts Act, the MPLDS collection and maintenance of data associated with individuals would have to be reasonably necessary for the performance of the MPLDS's statutory functions. See Mass. Gen. Laws Ann. Ch. 66A § 2(1). Further, access to such data would have to be spelled out specifically by statute or regulations. See Mass. Gen. Laws Ann. Ch. 66A § 2(c). Massachusetts also has anticipated the complaint in United States v. Miller, supra, by providing that the holder of data is required to maintain procedures to ensure that no personal data are made available in response to a demand for data made by means of compulsory legal process, unless the data subject has been notified of such demand in reasonable time so that he may seek to have the process quashed. See Mass. Gen. Laws Ann. Ch. 66A §2(k).

5. Virginia. -- The Virginia Act 15/ is interesting because real estate assessment information is specifically excluded from being "personal information," and is thus not subject to the provisions of the Act. See Va. Code § 2.1-379.2. An identifying particular is required to meet the definition of information system. The Act applies to "agencies," which are defined to mean any agency, authority, board, department, division, commission, institution, bureau, or like governmental entity of Virginia or any unit of local government, including counties, cities, towns, and regional governments. The Act provides more administrative detail than the other State Acts. Agencies are required to maintain a list of all persons or organizations having regular access to personal information in the information system. Agencies are required to maintain a complete record, including identity and purpose, of every access to any personal information in a system, including the identity of any persons or organizations not having regular access authority.

An individual data subject has the right to be informed whether he is legally required, or may refuse, to supply information; the right to receive notice of possible dissemination; the right to inspect all personal information on him; and the right to challenge and correct the information. The right to inspect does not extend to medical and psychological records given to a doctor by the individual, and does not include records of recipients of personal information who otherwise have regular access authority.

Similar to the Arkansas Act, the Virginia Act provides that disclosure of an individual's social security number cannot be required by an agency unless such number was previously furnished or disclosed. Agencies cannot refuse any service, privilege, or right to an individual because of his refusal to furnish his number, unless the furnishing of such number is specifically required by Federal or State law.

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15/ "Privacy Protection Act of 1976", Va. Code § 2.1-377 et seq.



Conclusion. -- The state privacy acts described above provide important procedural rights not otherwise afforded by Federal constitutional law. Whether these rights apply to MPLDS data depends, in the case of Arkansas and Massachusetts, on the presence of the same key function contained in a "system of records" as defined by the Federal Privacy Act: that is, whether the system can retrieve information based upon a number or symbol readily identifiable with an individual. In contrast, even if a "network-system" MPLDS were exclusively parcel-specific, it would appear that the Privacy Acts of Utah and Minnesota would apply to MPLDS disclosure and recordkeeping. In order to keep the network MPLDS operating with uniform efficiency throughout the United States, accommodation with "privacy laws" may be a pre-requisite, especially the more cumbersome aspects of (1) personalized notice to individuals and (2) standards of care imposed upon recordkeepers. For instance, if a "network-system" MPLDS replaces traditional land recordation systems, it would be unreasonable to require that notice be issued to property owners each time a parcel-identifier list is consulted. Likewise, if a State with a privacy act chooses to impose standards of care upon its county recorders who participate in the "network-system" MPLDS, it may desire to impose an entirely different set of standards and specifications than those imposed on data gatherers generally pursuant to the State privacy act.

Although the problems posed by this type of legislation may not present an insurmountable obstacle to the network MPLDS, the legislation itself arguably may reflect a public policy which is not copacetic with the scope of reporting and disclosure about land contemplated for the MPLDS network environment.

### III. Public Policy Implications.

To what extent do MPLDS reporting and disclosure requirements accord or conflict with expressions of public policy evidenced by case law or other legislation relating to information about land or commerce? While any conclusions which may be drawn from this type of analysis are not dispositive in determining the legal feasibility of establishing an MPLDS, they are pertinent in evaluating whether strong challenges to such a system are likely to be encountered in the legislature or the courts.

Considering first the Federal survey system, the apprehensions and fear that result from the very idea of the Federal Government aggregating data is documented in the report of the hearings of the Subcommittee on Constitutional Rights of the Senate Committee on the Judiciary in connection with bills considered before the Privacy Act was enacted.<sup>16/</sup> Indeed, the first witness to testify was a Dr. Nicholas Smyth of Washington, D.C. who objected to the Real Estate Sales Survey conducted by

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<sup>16/</sup> "Privacy, the Census and Federal Questionnaires," Hearings Before the Subcommittee on Constitutional Rights of the Committee on the Judiciary on S. 1791 (91st) Cong. 2nd Session 1969).

the Bureau of the Census. The questions asked on this particular survey called for a description of the transferred property, its sale price and other information describing the parties and the purpose of the transfer. The only question not asked was who is the beneficial owner of the property. While, legally, response was voluntary, the Director of the Census did not advise the recipient of the questionnaire that he could refuse to answer.

Senator Sam Ervin asked the doctor a series of questions which revealed the Senator's opinion of the survey. For instance, he characterized the survey as asking "the most intimate details about not only the character of the property but also about the price and how the price was paid." He also asked what value the information would have after it was acquired, pointing out that every piece of real estate is unique and has different values and characteristics.

These questions echoed the criticisms of information gathering expressed in the Senator's opening remarks. In his most damning comment, Senator Ervin observed that "our officials have learned that the easier it becomes to use computers to obtain and store information of all kinds about people, the easier it becomes to substitute surveys and 'people-studies' for judgment and creative ingenuity in the administration of the laws." After remarking on the "unrestrained zeal of the economist, the sociologist and all the other experts who gain a momentary hold on the programs of our bureaucracy," he concluded that authority for information gathering should be established by a specific statute, "directed to the problems of the twentieth century."

On that subject, witnesses from the legal community had a variety of opinions. Professor Fried of Harvard University emphasized that government should not act in the dark because "in a world as large and complex as ours, statistical facts may be the best and perhaps the only facts that are available." He concluded that what is required in information gathering is the striking of a prudent balance between the need of government to know and the right of privacy. However, by and large, Professor Fried favored reliance on procedural techniques instead of ruling out the gathering of data.

Professor A. R. Miller of the University of Michigan Law School directed his criticism toward the effect of the proliferation of data collection on "administrative degeneracy," the lack of control of the individual over information once it gets into the government system, and the duty of government to treat individuals fairly when it requests information. Professor A. S. Miller of George Washington University stated the need as being "to limit questions to truly governmental functions--and that is something Congress will have to determine."

At the heart of all this rhetoric, the real concern, with the possible exception of Professor Fried, seems to be whether the information gathering is necessary. The continuum of opinion which was expressed on how specific Congress must be in defining its purpose, in turn, suggests



that the ultimate criterion is "why does Congress want to know." Fried's position, on the other hand, suggests that, as a starting point, government should be able to find out whatever it thinks it might want to know.

In reviewing various types of information gathering legislation, it is apparent Congress has not hesitated to act when it believes that obtaining the information is in the interests of the citizenry or the government. Examples of disclosure designed to inform individuals are the Truth in Lending Act, Fair Credit Reporting Act, Interstate Land Sales Full Disclosure Act and, of course, the Federal Securities Laws. A newly expressed concern for making information available in the area of land transactions is evidenced by proposals for condominium registration and regulation.<sup>17/</sup>

One effort in this area, however, was discarded after a short trial. It was part of the Real Estate Settlement Procedures Act of 1974 (12 U.S.C. Chapter 27) and required a mortgage lender to refrain from giving loan commitments on existing homes until it had confirmed that the seller had given the buyer certain information. The information required was the name and address of the owners of the property, the date the property was acquired, and, if the property had been owned for less than two years and had never been used by the seller as a place of residence, the purchase price of the last arm's length transfer of the property, and the cost of any improvements, were to be disclosed. Criminal penalties were imposed on sellers and lenders who failed to comply. The objective was to make it difficult for unscrupulous speculators to sell older, defective homes at prices far in excess of their true value. This disclosure requirement was repealed in 1976.

In comparison with instances of consumer protection legislation, there are fewer pieces of legislation in which the sole purpose has been to provide the government with information. Obviously, the Bank Secrecy Act is a prime example. Likewise, the Home Mortgage Disclosure Act<sup>18/</sup> can be viewed as being designed to provide information for further or future regulation of federally insured lending institutions with respect to "redlining." Similarly, the International Investment

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<sup>17/</sup> The Department of Housing and Urban Development (HUD) has promulgated a model State statute dealing with condominium consumer protection. The statute requires the developer to register his offering and provide a copy of a current public offering statement to each prospective purchaser. The offering statement would have to include, among other information, a description of control held by the developer. This model State statute does not carry formal HUD endorsement, unlike the new condominium policies proposed in 42 Fed. Reg. 4740 (1977).

<sup>18/</sup> 12 U.S.C. Ch. 29.

Survey Act of 1976 and the Agricultural Foreign Investment Disclosure Act of 1978 have, as their purpose, the collection of information for government so that the effects of foreign investment may be analyzed for Congress, the executive agencies, and the general public. The uses to which the latter information might be put is evident from HR-3106, introduced in the 96th Congress, 1st Session, for the purpose of taxing foreign investors' capital gains on the sale or exchange of farm land.

One conclusion which might be drawn from the trend toward legislation whose primary purpose is to provide the government with information is that Congress may, indeed, be carrying out Senator Ervin's admonition to enact specific statutes "directed to the problems of the twentieth century," but, in the sense advocated by Professor Fried in positing the need for knowledge per se. In terms of the survey MPLDS, this trend has particular relevance since the data collected will not necessarily be needed in aid of an already determined regulatory purpose.

Whether these recent expressions of public policy support acceptance of a federal survey, such as the MPLDS, of course, remains to be determined. As noted above, apart from the Bank Secrecy Act, legislatively compelled disclosure and reporting requirements have been largely related to presumed dangers which can be fairly well defined. In comparison, the MPLDS survey would produce a mass of information about land, which is not connected to potential abuses or concerns that Congress already has articulated.

In looking at public policy expressions for or against the MPLDS under the network approach, the considerations are quite different. Since most of the information likely to be contained in the network MPLDS is already being collected by State and local governments, the issues are not the propriety of collecting the data or the need for collection. Instead, public policy aspects of the network MPLDS may revolve around (i) public policy as to secrecy of ownership of the property and (ii) public policy as to the aggregation of data on particular individuals. Obviously, these public policy aspects find some expression in the recognition of the right of privacy previously discussed. While an exhaustive investigation of the case law and statutes of the various states has not been undertaken in this regard, some general observations and concrete examples can be offered with respect to the public disclosure of information about land and its holders. Briefly, these are as follows:

1. A consuming interest with whether land is owned by foreigners is almost everywhere apparent. The introduction of a bill to require reporting of foreign ownership in Colorado, with the penalty for noncompliance being forfeiture, is one very recent example. In the wake of cries to uncover foreign ownership, a legislative concern with who owns



the land generally also may be developing. A bill introduced in the 1979 session of the Illinois General Assembly required the Department of Local Government Affairs to conduct "a survey of land ownership and usage in the State of Illinois...[to] provide information concerning ownership and usage of all land in the state in sufficient detail to assist the general assembly in developing legislation." A companion bill appropriates the sum of \$250,000 for that purpose. Assuming such a survey is authorized and the legislature finds its results useful, a logical next step is to require reporting of ownership by the holders to avoid the expense of continuing surveys.

2. In transactions involving land, where the government has determined that the purchaser ought to know with whom he is dealing, specific legislation has been enacted. An example is the widespread adoption of legislation regulating the sale of unimproved subdivision lots.

3. Where public policy protecting secrecy of ownership has been judicially recognized, the legislators have carved out exceptions. The protection given the Illinois Land Trust probably is the best illustration of this point. As is described in another Chapter, the Illinois Land Trust is a judicially protected creature. Title to land is held by a trustee, usually a bank or title company, under an agreement which reserves to the beneficiary of the trust full management and control of the property. The trustee, however, conveys, mortgages, and otherwise deals with the land directed by the beneficiary. Furthermore, the interest of the beneficiary is personal property and not an equitable interest in the real property.

Thus, the identity of the true owner of the land may never be known to those who deal with the land. Faced with various complaints from parties left in the dark, the Illinois Legislature has responded in the following situations:

- \* Where a building code violation is alleged, the governmental agency can require the trustee to disclose the identity of the owner;
- \* When the land is sold under an installment sale contract, and in any contracts with government, the beneficiary must be disclosed;
- \* Where applications for governmental permits are made, the beneficiary must be disclosed;
- \* Only the beneficiaries of a land trust may redeem property sold in tax deed proceedings
- \* In personal injury suits against a property owner, the statute of limitations is tolled once the plaintiff serves the land trustee to enable the plaintiff to find out who the beneficial owners are since they are the proper defendants.

Another attack upon the inviolate nature of the land trust has been made recently in connection with the liability for payment of delinquent real estate taxes. In The People of the State of Illinois v. Chicago Title and Trust Co., et al., 75 Ill.2d 480 (1979), the Illinois Supreme Court was faced with the question of whether the Illinois Revenue Act imposed personal liability for unpaid real estate taxes upon land trustees in their individual corporate capacities, upon land trustees solely with respect to their capacities over trust property, or upon the beneficiaries of the land trust. Upon concluding that "ownership [of trust property] lies with the beneficiaries though title lies with the Trustee," the Illinois Supreme Court found the beneficiaries of the land trusts personally liable for the unpaid real estate taxes. In the absence of a disclosure statute, however, tax enforcement officials will have to learn the identity of these beneficiaries by means of discovery in the course of litigation.

4. In Florida, the significance of ownership of land by elected officials and government employees has been recognized in the state constitution. Notwithstanding that Florida had a statute requiring disclosure of land holdings by elected officials and public servants ranging from senators to department heads and from county clerks to police chiefs, fire chiefs, and school superintendents, a "Sunshine Amendment" to the State Constitution provides for such disclosure by constitutional officials, candidates for such offices, and any other officials, candidates or employees "as determined by law." In upholding the amendment, the Fifth Circuit Court of Appeals held that concern for an individual's financial privacy was outweighed by the public's right to know. Plante v. Gonzalez, 575 F.2d 1119 (5th Cir. 1978) cert. denied 99 S.Ct. 1047 (1979). In terms of public policy on privacy, this opinion is noteworthy for its emphasis on the exclusion of financial privacy from areas traditionally protected.

Apart from the pros and cons of whether the beneficial ownership of land ought to be public knowledge, if public policy favors secrecy, the MPLDS presumably could be designed to protect confidentiality. Whether public policy demands such treatment in a system which has the capability not only to identify the owner of a particular parcel but also to aggregate data on an individual's total land holdings may be implicit in the reservation expressed in Whalen v. Roe, supra. As will be recalled, the Supreme Court there noted that "the right to collect and use...data for public purposes is typically accompanied by a concomitant statutory or regulatory duty to avoid unwarranted disclosures."

Assuming, however, that such a duty to protect confidentiality of ownership was not imposed, could an individual nevertheless object to the MPLDS because of the ease with which information about all of his affairs can be obtained?



On this point, the cases upholding the strong public policy known as the "public records privilege" offer some parallels. This privilege has its roots in First Amendment rights. In substance, it recognizes that, once information becomes a part of the public record, access to that information can no longer be restrained. Its vitality and strength are illustrated by a line of cases upholding publication of matters of public record against attack on the grounds of invasion of privacy. In Cox Broadcasting Corp. v. Cohn, 420 U.S. 469 (1975), broadcasting the name of a female rape victim was upheld, notwithstanding a Georgia statute making such publication a misdemeanor. The information was acquired by attending the trial and looking at the indictment. In Oklahoma Publishing Co. v. District Court, 430 U.S. 308 (1977), the court opened a closed juvenile hearing to the press despite a State statute which required closed hearings and the press subsequently published the name of the eleven year old boy charged with murder in the case. Subsequently, at a closed arraignment, the judge prohibited any publication or dissemination of the boy's name or picture. The Supreme Court ruled that the District Court could not enjoin further publication once the hearing had been opened, notwithstanding the violation of the statute. In Bell v. Courier Journal and Louisville Times Co., 402 S.W.2d 84 (Ky. 1976), the Kentucky Court of Appeals held that a newspaper article publishing the public record of a judge's delinquent taxes was not an actionable invasion of privacy. From these cases, then, it is evident that, even if the legislature decides publication is not desirable, access cannot be denied once the information is a matter of public record. Similarly, whether a double standard of access for an MPLDS enabling access to ownership of a given parcel, but denying access to compile data on all land owned by that owner, would be sustained is highly questionable.

Conclusion. -- In sum and as noted at the outset, it is important to be mindful of public policy implications in assessing the legal feasibility of any new proposal. However, on a subject like MPLDS, sources of public policy are not analogous enough to offer more than tentative guidance. The persuading factor here appears to be the same as that derived from the examination of the constitutional considerations--whether, on balance, the MPLDS with its reporting and disclosure requirements is a useful means for supplying what Congress in its wisdom may decide it wants to know.

## PART TWO

### The Federal Role In Establishing the MPLDS

That Congress regards the collection of land data as an important concern of the Nation is evident from its direction to study the feasibility of establishing a multipurpose land data system in connection with monitoring foreign direct investment. Based on that charge, the MPLDS segment of this Study has focused on two quite different roles which the Federal government might play. These, in turn, involve quite different legal considerations.

In analyzing the Federal survey approach, whether the objective of the survey is to provide a continuous, reliable source of information for statistical purposes or simply a benchmark sampling from time to time raises jurisdictional considerations. Depending on the function the survey is to perform, several jurisdictional foundations are available. Recognition of the scope of legislative power may therefore affect choices for implementing the survey. With respect to the network MPLDS, securing State participation is essential. Therefore, restraints on the Federal role may be critical. These two questions are discussed generally in this part since they touch the feasibility of the system. If and when the Federal role is cast, the draftsmen undoubtedly will have many more to answer.

#### I. Jurisdictional Foundations for the Federal Survey.

A. The Census Clause. -- One jurisdictional basis for the implementation of the "Federal-survey" MPLDS system would be the express power to enumerate the population found in the U.S. Constitution. Article I, Section 2, Clause 3, sometimes referred to as the "Census Clause," provides as follows: "The actual enumeration [of the populace] shall be made within three years after the first Meeting of the Congress of the United States, and within every subsequent Term of ten years, in such Manner as they shall by Law direct." Under that authority, the Bureau of the Census has requested information about agriculture,<sup>19/</sup> law firms,<sup>20/</sup>

<sup>19/</sup> Privacy, the Census, and Federal Questionnaires, Hearings on S. 1971 Before the Subcommittee on Constitutional Rights of the Senate Committee and Constitutional Rights of the Senate Committee on the Judiciary, 91st Sess. (1969), p. 86.

<sup>20/</sup> Id. at 82.



retirement history,<sup>21/</sup> medicare,<sup>22/</sup> work experience,<sup>23/</sup> health problems,<sup>24/</sup> veterans,<sup>25/</sup> institutionalized adults,<sup>26/</sup> hardware business,<sup>27/</sup> home construction and detail for fallout protection,<sup>28/</sup> and real estate sales.<sup>29/</sup> The Bureau of the Census also has acted for other departments of government (Department of Defense, Department of Health, Education and Welfare) in conducting surveys.<sup>30/</sup>

However, the scope of permitted inquiry under the Census Clause has not gone unchallenged. In United States v. Moriarity, 106 F. 886 (S.D.N.Y. 1901), a census taker was indicted for filing a fictitious return with respect to certain data on manufacturing firms. While the collection of the data was expressly authorized by Congress, the defendant argued in defense that the census act for the year in question was unconstitutional because data gathering on manufacturing concerns is not authorized by the Census Clause. The court rejected the challenge, responding as follows:

Respecting the suggestion that the power of congress is limited to a census of the population, it should be noticed that at stated periods congress is directed to make an apportionment, and to take a census to furnish the necessary information therefor, and that certain representation and taxation shall be related to that census. This does not prohibit the gathering of other statistics, if "necessary and proper," for the intelligent exercise of other powers enumerated in the constitution, and in such case there could be no objection to acquiring this information through the same machinery by which the population is enumerated, especially as such course would favor economy as well as the convenience of the government and the citizens....The functions vested in the national government authorize the obtainment of the information demanded by section 7 of the census act, and the exercise of the right befits an exalted and progressive sovereign power, enacting laws adapted to the needs of the vast and varied interests of the people, after acquiring detailed knowledge thereof. Illustrations of this ability and

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<sup>21/</sup> Id. at 925.

<sup>22/</sup> Id. at 971.

<sup>23/</sup> Id. at 1,000.

<sup>24/</sup> Id. at 927.

<sup>25/</sup> Id. at 985.

<sup>26/</sup> Id. at 867.

<sup>27/</sup> Id. at 1,040.

<sup>28/</sup> Id. at 167.

<sup>29/</sup> Id. at 12.

<sup>30/</sup> Id. at 167, 927.

duty of the government to make the researches involved in the act of Congress under consideration by far outrun the necessities of the present decision, and awaken a just satisfaction that the federal government is not a crippled and resourceless dependent, but rather a living political entity, sovereign within its just sphere, meeting its ever-widening obligations, and making large contributions to the welfare of its citizens and to the world. While purely internal affairs of the states are and should be beyond the power of the federal government, the powers that the constitution has imposed bring it into close intimacy with all the activities of the people, whatever their pursuits or conditions. . . . A government whose successful maintenance depends upon the education of its citizens may not blindly legislate, but may exercise the right to proclaim its commands, after careful and full knowledge of the business life of its inhabitants, in all its intricacies and activities. The demurrer should be overruled. 106 F. at 891, 892.

That ringing defense is still forceful, as is evidenced by the relatively recent decision of the U.S. Court of Appeals for the Second Circuit relying upon Moriarity in holding that census questions relating to housing, labor, and health were not unduly sweeping in their scope or violative of the Fourth Amendment. See United States v. Rickenbacker, 309 F.2d 462, 463 (2nd Cir. 1962).

Dicta in Knox v. Lee, 79 U.S. (12 Wall.) 457 (1870) at 536, early announced the notion emphasized in Moriarity that such data gathering is necessary and proper to the exercise of other enumerated duties:

[A] power may exist as an aid to the execution of an express power, or an aggregate of such powers, though there is another express power given relating in part to the same subject but less extensive. Another illustration of this may be found in connection with the provisions respecting a census. The Constitution orders an enumeration of free persons in the different States every ten years. The direction extends no further. Yet Congress has repeatedly directed an enumeration not only of free persons in the States but of free persons in the Territories, and not only an enumeration of persons but the collection of statistics



respecting age, sex, and production. Who questions the power to do this?

In United States v. Little, 321 F.Supp. 388 (D. Del. 1971), one Thomas Little challenged the power by refusing to answer certain questions submitted to him in connection with the 1970 Decennial Census. He alleged that certain sections of the authorizing legislation were unconstitutional because the standard for exercising the authority was unintelligible. He also argued that the answers sought by the questions amounted to an unconstitutional invasion of his right of privacy. In refusing to find merit in either allegation, the court ruled that the fact there is a zone for the exercise of discretion by the Secretary of Commerce in framing questions which will elicit the necessary statistical information does not render the delegation of power by Congress to the Secretary invalid. Regarding the invasion of privacy claim, the court emphasized that the questions

all relate and bear upon important federal concerns, such as population, housing, labor and health. The information sought in these vital social welfare areas, in which the government is so heavily committed, will afford a sound statistical basis for taking intelligent government action. The fact that many personal questions may be asked in order to provide statistical reports on housing, labor, health and welfare matters does not make these questions an unconstitutional invasion of a person's right to privacy.<sup>31/</sup>

Although the Little decision does emphasize the protection of confidentiality, the case law uniformly affirms that the scope of the Census Power is indeed broad.

B. The Welfare Clause and Necessary and Proper Clause. -- An alternative jurisdictional basis for the implementation of the "federal survey" MPLDS system might be derived from the Welfare Clause and the Necessary and Proper Clause of the Constitution. The source of the Welfare Clause is Article I, Section 8, Clause 8. Conjoined as it is with the power to tax, its scope was a subject of much dispute in the debates of the constitutional convention. But that dust has long since settled and the Clause may be read to express the police power of Congress, that is, "The Congress shall have power to...provide for the...general Welfare of the United States." Its companion, the Necessary and Proper Clause, Art. I, Section 8, Clause 18, provides that, "The Congress shall have the Power to make all Laws which shall be necessary and proper for carrying into Execution the foregoing

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<sup>31/</sup> U.S. v. Little, supra, p. 392.

Powers, and all other Powers visted by this Constitution in the Government of the United States, or in any Department or officer thereof."

As a basis for a comprehensive MPLDS, it can be observed that the Welfare Clause is "a grant of power, the scope of which is quite expansive, especially in view of the enlargement of power by the necessary and proper clause."<sup>32/</sup> It was the basis for the reporting and disclosure under Federal Election Campaign Act, discussed in Buckley v. Valeo. Furthermore, as that opinion emphasizes in discussing public financing of campaigns through permitting tax allocations, the Welfare Clause is not a limitation on the power of Congress. Hence, the Court held it was for Congress to decide whether tax expenditures will promote the general welfare.<sup>33/</sup> The often-quoted view of Justice John Marshall on the scope of the Welfare and Necessary and Proper Clause also appears appropriate in the MPLDS context:

Let the end be legitimate, let it be within the scope of the Constitution and all means which are appropriate, which are plainly adapted to that end, which are not prohibited but consist with the letter and spirit of the Constitution, are constitutional. McCulloch v. Maryland, 4 Wheat. 316, 420 (1819).

C. The Commerce Clause. -- The Commerce Clause may offer yet another potential jurisdictional basis for sustaining a "Federal survey" MPLDS. Generally, anything which can be bought and sold is a subject of commerce. However, whether land, which obviously cannot be transported from one State to another, constitutes interstate commerce may be questionable. There is some case law which states that it is not. In Ware & Leland v. Mobile County, 209 U.S. 405 (1908), the U.S. Supreme Court said there was "no interstate commerce directly involved" in analyzing the attempted transfer of Wisconsin land by a foreign corporation in violation of Wisconsin statute. An Alabama court of appeals also reached the conclusion that "real estate is not the subject of interstate commerce" in Blan v. Hollywood Realty 118 So. 253, 256, cert. denied, 118 So. 258 (1926).

Despite the dicta in Ware & Leland, whether a modern court would hold that the Commerce Clause is not sufficiently broad to support a Federal survey designed to elicit data about commerce in land is problematic. While real estate does not cross State lines, the notes and currency which finance real estate investment often do. A wide array of legislation, including the Bank Secrecy Act discussed in Part One, supra, is concerned with the flow of investment. Judicial decisions since the Depression of the 1930s have been particularly generous in detecting the presence of interstate commerce, particularly in certain

<sup>32/</sup> Buckley v. Valeo, 424 U.S. 1 (1976); McCulloch v. Maryland, 4 Wheat 316, 420 (1819).

<sup>33/</sup> Buckley v. Valeo, Id. at 90.



contexts. In the U.S. Supreme Court decision in Daniel v. Paul, 395 U.S. 298 (1968), the Court held that interstate transport of the ingredients of bread served at the snack bar of an amusement park was support the application of the Civil Rights Act of 1964<sup>34/</sup> to the park. On that basis, the park, which professed to be a private club, was held to be a public accommodation subject to the nondiscrimination provisions of the Act.

One commentator on constitutional law analyzes the broad power of the commerce clause in terms of whether any of the following three criteria are present: (1) substantial economic effect, (2) cumulative effect or (3) the "protective principle", any one of which will support commerce clause jurisdiction.<sup>35/</sup> The "protective principle" encompasses Federal regulation imposing protective conditions on the privilege of engaging in an activity that affects interstate commerce. An innovative application might be tying MPLDS reporting to private entities engaging in interstate commerce.

## II. Securing State Participation.

Assuming that present case law invites the use of the Commerce Clause as the basis for the federally managed "survey-system" MPLDS, could state or local governments be compelled to undertake what conceivably could be costly data gathering efforts in order to supply information for federal MPLDS surveys? The recent Supreme Court decision in National League of Cities v. Usery, 426 U.S. 833 (1976), is the paramount factor in answering this question. The holding in National League invalidated the 1974 amendments to the Fair Labor Standards Act which extended the minimum wage and maximum hour provisions to almost all public employees employed by the States and their political subdivisions. The case is noteworthy, not because the Court invalidated the amendments, but for the reason it did so. The jurisdictional basis for the amendments was the Commerce Clause but the Court did not question the exercise or applicability of the Commerce Clause. Rather, it said that Congress had incorrectly exercised authority directed to the States as States, interfering with State sovereignty.

It is one thing to recognize the authority of Congress to enact laws regulating individual businesses necessarily subject to the dual sovereignty of the Nation and of the State in which they reside. It is quite another to uphold a similar exercise of congressional authority directed, not to private citizens, but to the States as States.

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<sup>34/</sup> 42 U.S.C. § 2000a et seq.

<sup>35/</sup> Tribe, Laurence American Constitutional Law § 5-4, through § 5-6.

We have repeatedly recognized that there are attributes of sovereignty attaching to every state government which may not be impaired by Congress. 427 U.S. at 854.

The Court said that one "undoubted attribute" of State sovereignty is the State's power to determine the wages which shall be paid to those they employ. The majority also emphasized the increased cost to State governments, but denied relying on that potential burden in reaching their decision. Justice Brennan's dissenting opinion criticized the majority for "manufacturing an abstract without substance, found neither in the words of the Constitution nor on precedent." 426 U.S. at 60. Justice Brennan feared that the Court would now be able to find that any Federal regulation under the commerce power will "alter or displace the States' abilities to structure employer-employee relationships," however insignificant the cost.

Aside from the ramifications for the federal survey, National League of Cities also could have implications in inhibiting the Federal role in achieving a network MPLDS. For example, tying Federal access into the network arguably could force States to reorganize the activities of State, county, and local offices, and thus "alter or displace the States' abilities to structure employer-employee relationships."

In assessing the reverberations of State sovereignty set up by National League of Cities it is important to note that the majority expressed no view as to whether different results would obtain if Congress sought to affect integral operations of State government by exercising authority granted under sections of the Constitution such as the spending power (articulated in Article 1, § 8, clause 1, of the Constitution), or § 5 of the Fourteenth Amendment, rather than the Commerce Clause. See 426 U.S. at 852, n. 17. As a result, National League of Cities may have no relevance, if the network MPLDS is based on voluntary State participation.

The disadvantage of relying on voluntary participation is the probability of a fragmentary system if all States do not participate. The Federal Government has the means to induce voluntary participation by providing incentives (grants, etc.) which are difficult for States to resist. Unfortunately, the Federal Government has not always used the leverage provided by such programs to its best advantage. See generally Tomlinson, Edward A., and Mashaw, Jerry L., "The Enforcement of Federal Standards in Grant-in-Aid Programs: Suggestions for Beneficiary Involvement," 58 Va. L. Rev. 600 (1972). Moreover, it has been suggested recently that National League of Cities implies that conditions upon Federal funds must be closely related to any State activities whose funding is subject to termination for non-compliance. For example, a State's failure to effectively use federal funds to implement a "network-system" MPLDS should not result in the Federal Government's termination of highway funds. Otherwise, State autonomy would be infringed, and the Federal Government would have limitless power over any State or



local governmental activity solely on the basis that these entities have received Federal funds. See Richard B. Stewart's "Pyramids of Sacrifice? Problems of Federalism in Mandating State Implementation of National Environmental Policy," at 86 Yale L.J. 1196 (1977).

Although cogent, that interpretation of National League of Cities was not recognized in Texas Landowners Rights Association v. Harris.<sup>36/</sup> There, the court ruled that a carrot and stick scheme, which offers inducements for state participation, differs from one which mandates local compliance with a federal enactment.

The Federal legislation involved was the National Flood Insurance Act.<sup>37/</sup> The stated purpose of the Act was to protect property owners and the United States against flood damage resulting in personal hardships and economic distress. As a condition of eligibility for government-supported flood insurance, the Act required designated flood-prone communities to adopt local flood plain management measures to reduce or avoid flood damage. In 1973, Congress passed the Flood Disaster Protection Act<sup>38/</sup> which sought to enhance the attractiveness of enrollment through a dual scheme of sanctions against both non-participating communities as a whole, and against flood-prone property located in an area which is eligible for non-participating flood insurance. These sanctions included the denial of direct and indirect financial assistance to private-sector construction and land acquisition activities.

The State of Missouri, 40 political subdivisions of 12 States, and 30 individual landowners and associations of landowners within the federally designated flood zones challenged the constitutionality of the 1973 provisions under various theories. A primary issue was whether the Federal sanctions against non-cooperating states were "so severe that an otherwise optional Federal benefit program may fall within the recently announced rule of National League of Cities v. Usery," 453 F.Supp. at 1029. On this score, the Texas Landowners court upheld the constitutionality of the Flood Disaster Protection Act of 1973 by emphasizing its "carrot and stick" approach. The court also distinguished the District of Columbia Court of Appeals decision striking down the Clean Air Act regulation in District of Columbia v. Train, 172 U.S. App. D.C. 311, 521 F.2d 971 (1975), vacated 97 S.Ct. 1635 (1977) on the basis that, under the Clean Air Act, unconsenting States were required to enact, administer, and enforce Environmental Protection Agency Programs.<sup>39/</sup> Thus, Texas Landowners offers some precedent for the threat of withdrawing any number of Federal

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<sup>36/</sup> 453 F.Supp. 1025 (D. Del. 1978)

<sup>37/</sup> 42 U.S.C. § 4001 et seq.

<sup>38/</sup> Pub. L. No. 93-234, 87 Stat. 975.

<sup>39/</sup> The U.S. Supreme Court vacated the Court of Appeal's decision when the Solicitor General admitted that the Clean Air Act regulations were in need of modification and were in the process of revision. The Court declined to render what would amount to an "advisory opinion" of the contested regulations.

"carrots" from local governments that do not "choose" to participate in the network MPLDS.

There are other approaches to securing State participation, however. For instance, the United States Code now provides for intergovernmental cooperation between the Federal and State governments in Title 42, Chapter 52. Subchapter III of Chapter 52 provides for special or technical services to be provided to State and local units of government by Federal departments and agencies. All departments and agencies of the executive branch of the Federal Government which did not have authority to provide reimbursable specialized or technical services to State and local governments are authorized to do so. Prior to the enactment of this "Intergovernmental Cooperation Act" in 1968, the Bureau of the Census, the Weather Bureau, the Bureau of Reclamation, and the Internal Revenue Service had been providing specialized services to State and local governments on a reimbursable basis.

A venturesome approach, which might prove well-suited to the network MPLDS effort, is exemplified in legislation offering law enforcement assistance to State and local governments. Under Section 3711 of Title 42 of the Code, a Law Enforcement Assistance Administration is established. Within that Administration is the Office of Community Anti-Crime Programs which is directed to provide appropriate technical assistance to community and citizen groups in or to enable them to apply for grants. In addition, the office is to coordinate its activities with other Federal agencies and programs and to provide information on successful programs of citizen and community participation. The goal of all these programs is derived from the "Omnibus Crime Act", to assist State and local governments in strengthening and improving law enforcement and criminal justice at every level by means of Federal assistance. The Congress could create a network system MPLDS in an analogous manner.

One approach already is underway under Section 2611 of Chapter 27 of the Code. It provides that the Secretary of HUD is to establish a model system for the recordation of land title information and mortgage transactions with a view to the possible development of a nationally uniform system of land parcel recordation. In the view of the authors, this effort presents far more of a challenge than the network MPLDS because it will have to deal with how to facilitate and simplify the land transaction as opposed to organizing a system to manage information. The proposal in this area now enjoying the most currency is the Uniform Simplification of Land Transfers Act proposed by the Uniform State Law Commissioners. But it deals for the most part with substantive questions of what action parties should be required to take to preserve interests in land. In addition and as will be discussed later, USLTA and the methods it proposes require at least a primitive MPLDS. In comparison, neither logic nor the existing laws of the States surveyed in this report indicate that the adoption of a network MPLDS requires substantive changes in the law of conveyancing and land transactions.



## PART THREE

### Existing State Law and the Feasibility of MPLDS

As described in the Introduction, the MPLDS will utilize a parcel identifier system to attain the capability to store data relating to title transfer, encumbrances of record, real property taxation, land use and environmental planning, and foreign direct investment. Thus, before progress can be made in designing a feasible network MPLDS system, it is necessary to examine what real estate and land use data are generated by existing law.

Because the primary responsibility for this data gathering lies with State and local government, the State constitutions and statutes of Illinois, North Carolina, Iowa, Florida, Colorado, Vermont, and Oregon were examined in detail. Profiles of the laws of these seven States, which were selected for the purpose of providing a geographical sample of each region of the country, are appendix to this Chapter. The observations contained in this section are distillations from the data gathered from the seven State surveys. Reference should be had to the surveys themselves for additional detail on any particular State law.

Each State law survey addressed the following questions:

1. What real estate and land use data presently are recorded under State law?
2. What real estate, land use or environmental data are generated pursuant to State law, but not centrally gathered in any land data system?
3. What governmental officers or agencies are responsible for gathering this information, and to what extent do they cooperate in using this information?

The purpose of these inquiries was to determine to what extent certain key elements of an MPLDS, such as the use of the parcel-identifier system, are present now in State law. It also was hoped that insights could be gained into recent trends in modernizing real estate recording systems and the degree of use made of private data systems, such as those kept by title insurance companies. As the primary responsibility

of this research effort is to study the legal feasibility of implementing an MPLDS, a very important facet of the State law survey was to determine whether (i) the constitutional restrictions facing county officers, or (ii) the concept of local "home rule" would require constitutional amendments in order to guarantee the effectiveness of the "network-system" MPLDS.

## I. Existing State Law.

A. Recorded information. -- The seven State surveys revealed that existing State law requires the recording of an incredibly diverse array of real estate and land use information. Everything from traditional real estate documentation, such as deeds and mortgages, to farm names, solar easements, liens upon irrigation ditches, and sanitary landfill permits finds its way into local real estate records. The variety is due, in part, to differences in geography and climate. For example, Colorado is among the pioneers in establishing solar easements to take advantage of the dry, sunny climate on its eastern slopes; in addition, Colorado law provides for liens deriving from the repair of all important irrigation ditches. North Carolina requires "shore protection liens" to be filed permanently with the county recorder of deeds to aid in the protection of its coastal resources, and Oregon contains special provisions for recorded miner's liens.

The motivation for filing the majority of the volume of recorded instruments is not the fear of civil or criminal penalties but the possibility that the priority of one's rights in real estate may be forfeited if the filing is not protected. This is certainly the case with mortgages, liens, and fixture filings. In none of the seven States does the failure to record a deed affect the adequacy of the conveyance.

A variety of instruments are recorded, however, solely because the owner faces a penalty if the law is not complied with. Often this penalty takes the form of a criminal misdemeanor and monetary fine for, such violations as a conveyance of land in violation of the Illinois Plats Act or failure to comply with the Illinois law requiring the filing of property reports by those marketing previously unsubdivided land into developments containing fifty or more lots. See Ill. Rev. Stat. (1977) Ch. 30 § 374. In Iowa, the failure to record a conveyance or lease of agricultural land required to be recorded by the grantee or lessee is punishable by a fine. Where these laws are not enforced, however, they may prove to be honored only in the breach. Iowa law imposes certain affirmative duties upon its recorders to increase the likelihood that penalties will be enforced. Under Iowa law, the grantee or lessee of a conveyance or lease of agricultural land is required to record his conveyance or lease within 180 days after the date of conveyance or lease, although leases which do not exceed five years in duration with renewals are excluded. Recordors are required to report conveyances filed more than 180 days after execution to the county attorney for enforcement.



Perhaps more effective are those laws which require filing as a prerequisite to the course of action being pursued by the property owner. For example, a declaration of the consideration paid for real property and the purchase of real property transfer stamps usually is a prerequisite to the recording of a deed to real property. While the public admission of the consideration paid for property will lead to a tax reassessment, parties comply with the law so that the recorder will record the deed and thus protect the purchaser's priority. Similarly, condominium declarations are filed and, under certain municipal ordinances, full disclosures of legal and beneficial ownership interests must be made to subject buildings to the Act and to sell units individually. See, for example, Chapter 100.2 of the Municipal Code of Chicago concerning the filing of property reports relating to condominium conversions.

Few of the State laws surveyed compel extensive disclosure of ownership interests. As noted above, condominium laws require the filing a declaration subjecting the property to the terms of the condominium statute, but extensive disclosure of legal ownership--such as beneficial ownership, if the property is in trust, or corporate shareholders, if title is in a corporation--usually is not required. States which have adopted the Uniform Business Corporation Act or the Uniform Limited Partnership Act do not require detailed disclosures of the real estate holdings by the corporate or partnership entity. Section 38-30-108 of the Colorado Revised Statutes requires a degree of disclosure in that instruments conveying real estate which describe the grantee as trustee, agent, conservator, executor, or in some other representative capacity must name the beneficiary so represented and define the trust or other agreement under which the grantee is acting by referring to a publicly recorded document. If the statute is not complied with, the description of the grantee is considered a reference to the person only and is not an effective notice of a trust or other representative capacity of the grantee.

In two States, additional disclosures are required of corporate agriculture. In Oregon, corporations and cooperatives that conduct any farming activity are required to file annual statements with the Corporation Commissioner setting forth detailed information as to farming activity engaged in elsewhere in Oregon and in other States or countries. The disclosures pertain to farm products, corporate directorships, and ownership interests.

The "Corporate or Partnership Farming Act" found in Chapter 1726 of the Code of Iowa provides for detailed disclosure of interest in Iowa agricultural land for foreign and non-foreign corporations and partnerships. The Act imposes a moratorium, with exceptions, on the acquisition of agricultural land by corporations until August 15, 1980. Corporations that own or lease agricultural land are required to file with their annual report detailed information as to land leased and owned, including a description of the acreage and location listed by township or legally described urban plat. Statements of purpose are required in the case

of a corporation holding agricultural land for immediate or potential use in non-farming purposes. Limited partnerships have similar reporting burdens imposed upon them. Failure to file a report or the filing of false information is punishable by a civil fine not to exceed \$1000. In addition, the Secretary of State has the duty to notify anyone who he has reason to believe is required to file a report and has not done so. Another Iowa law states that conveyances and leases to nonresident aliens must disclose by means of a recorded affidavit the name, address, and citizenship of the nonresident alien owner.

With the exception of Oregon and Iowa's disclosure requirements pertaining to corporate farming, the State laws examined tend to require more extensive disclosure concerning the assessed value of property as opposed to its legal or beneficial ownership. State law, therefore, appears to reflect a philosophy that it is much more important to collect real property taxes than it is to be concerned about who is paying them. For example, each of the seven States surveyed requires a disclosure of the amount of consideration paid for property as a prerequisite to the recordation of the deed. These disclosures invariably are routed to the local assessor for the purpose of valuing property for real property taxation. In States where land trusts are in use, these transfer tax disclosure requirements can be avoided by transferring ownership to a purchaser solely by means of an assignment of beneficial interest in the land trust. See, for example, the discussion in Illinois Attorney General Opinion S-711, 1979, Illinois Attorney General's Opinions 99.

Residents of Iowa and real property owners in those North Carolina counties that have not adopted a permanent index number listing system have an affirmative obligation to list their property for taxation. These North Carolina property owners are required, under penalty of both criminal misdemeanor and exposure to liability for back taxes, to file tax "abstracts" which state: (a) the tract's name and location; (b) the number of acres that are wooded, cleared, that contain mineral or water resources, or are considered wasteland; and (c) the number of acres contained in an incorporated municipality. North Carolina property owners who are required to file abstracts face perhaps the most stringent ownership disclosure requirements observed in the seven State sample: individuals trading under firm names must reveal their true name and address; unincorporated associations must show the names and addresses of principal officers; partnerships must reveal the names and addresses of their full partners. In contrast, Illinois law does not require real property owners to disclose themselves for the purpose of taxation, despite the fact that it would help county officials enforce the in personam liability for unpaid real property taxes imposed by Section 756 of the Illinois Revenue Act. As such, it is to a property owner's advantage to have an incorrect name listed with the assessor. Some Illinois property owners have been known to deliberately file "change of address" cards with the county assessor indicating that their parcels are owned by church organizations in the hope that the liens on their delinquent parcels will not attract bids at the annual tax sale due to the fact that the sale of church property ordinarily would be a sale in error.



In summary, State laws presently require the recording of a wide variety of data, with some of the differences in State requirements attributable to geographical and geophysical features. The property owner's fear of failing to perfect a notice filing is the motivation for the majority of recorded documents, although many instruments are filed because they are a prerequisite to further action (as the filing of a condominium declaration is a prerequisite to the sale of individual units), or because miscellaneous fines would otherwise be imposed. While the State laws surveyed did not require extensive ownership disclosures, each State required transfer declarations stating the consideration paid for property to aid in its valuation for taxation.

Were a network MPLDS to be adopted in all States, or were the government to survey the data recorded in each State, the results would differ because the laws requiring recordation differ. In order to achieve uniformity in the MPLDS data base, the substantive state law of every state would have to be changed to parallel that of the model--perhaps, the Uniform Simplification of Land Transfer Act. If one goal of MPLDS is to require extensive ownership recording, the laws of the seven states surveyed would have to be modified to achieve detailed disclosure of partnership and corporate interests in land.

B. MPLDS characteristics in existing recording systems. -- To what extent are MPLDS characteristics already found in State law, thus facilitating the creation of an MPLDS? As indicated in the Introduction, an important aspect of the MPLDS is its ability to record detailed information as to the ownership of real property. The preceding discussion indicates that this type of ownership disclosure does not occur in the seven State sample.

What of the other key characteristics of an MPLDS--that the system be parcel-specific and that each parcel bear a unique permanent index number? A vast majority of the documents recorded under existing law are done so in a parcel-specific manner to perfect a notice-filing and thus advise third parties of prior interests and claims. For example, there is no point to filing a deed, mortgage, or lien claim without a correct legal description, because to do so would place it outside the chain of title and jeopardize the validity of the notice. But it is important to note that while most filings are parcel-specific in intent, they do not utilize the permanent parcel-identifier concept so vital to MPLDS.

North Carolina is the only State surveyed which is introducing the parcel identifier to routine real estate documentation. G.S. 161-22.2 authorizes the adoption of parcel number index systems as the "official real estate property index of the county," provided the system obtains the Secretary of the Department of Administration's approval.

G.S. 161-30, entitled "Modernization of Land Records," states that in any county where parcel identifiers have been assigned to any of the real property situated within the county, the county commissioners may

require that the register of deeds shall not accept for registration any map, deed, deed in trust, or other instrument affecting real property unless the parcel identifier for all of the property described is affixed and verified by the county as part of the legal description. However, G.S. 161-30(C) states that failure to comply with the parcel identifier requirement shall not affect the validity of any instrument that is duly recorded. As a result, while the State is encouraging the adoption of a parcel identifier system, it is not yet deemed to be the sole, sufficient mechanism through which to describe and convey interests in real property.

Although North Carolina is the only state surveyed which is moving toward the implementation of a parcel identifier system for recorded instruments, Illinois, Iowa, and North Carolina assessors already enjoy authority to use such identifiers for assessment and taxation. To the extent that these parcel identifiers correlate to an accurate tax map or legal description of individual parcels, there already exists an important keystone to the future development of MPLDS.

Tax assessors in the States surveyed are accustomed now to another characteristic of MPLDS: the standardization of practices and procedures. The laws of each State surveyed place local assessment practices under some form of review at the State level. North Carolina's fledgling parcel identifier system for all recorded instruments is similarly under the scrutiny of the Secretary of Administration to establish greater uniformity in local land records systems.

There are other trends discernible in State law which might be capitalized upon in developing an MPLDS. First, of the seven States surveyed, at least three explicitly authorize recorders to utilize computer technology in their indexing work. Second, Florida, Colorado, Oregon, and Vermont have expressed an interest in accurate mapping through laws which develop state "coordinate systems" based on plane coordinates established by the U.S. Coast and Geodetic Survey and National Oceanic Survey; in North Carolina, G.S. 102-15 establishes a statewide program for improvement of county land records under the Secretary of the Department of Administration, whose first statutory priority is to complete countywide planimetric or orthophoto base maps which will facilitate the adoption of the parcel identifier system. The State Department of Administration provides financial assistance to counties for this purpose.

A third, related phenomenon which would facilitate MPLDS implementation is State efforts to modernize existing records. As indicated above, North Carolina is providing financial assistance to its counties in order to gradually construct a cadastral-based MPLDS using a parcel identifier system. This effort is supplemented by the "Lands Records Management Program" created pursuant to G.S. 143-345.6. This program is maintained by the Secretary of the Department of Administration for the purposes of advising registers of deeds, local tax officials, and local planning officials about sound management practices and of es-



tablishing greater uniformity in local land records systems. As part of this program, the Secretary recommends standards for the reproduction of records by photograph, microphotography, and other means. These standards, however, are not binding "upon the offices of local governments to which they apply." G.S. 143-345.6. As indicated above, three of the seven States surveyed explicitly authorize local recorders to utilize computer technology, introducing the way for MPLDS.

Lastly, the laws of these seven States contain some noticeable steps toward intergovernmental cooperation in the keeping of real estate records. In North Carolina, this cooperation occurs between the State and county levels. The law obligates the State to make funds available for the purpose of making improvements in county land records systems so that "a greater degree of statewide standardization of land records will result." G.S. 102-17. Upon request of local government, the Secretary of the Department of Administration will conduct management studies of register of deeds offices, using assistance from the Office of State Personnel. Together with the Secretary of Cultural Resources, the Secretary of the Department of Administration provides on-going technical assistance in a number of areas, including the uniform indexing of records and centralized recording systems. G.S. 143-345.6(c). Together with the Departments of Revenue, Natural Resources, and Community Development, the Secretary is to conduct a program for the preparation of county base maps and county property-line maps.

It should be noted, however, that North Carolina's movement toward a parcel identifier system is gradual in nature. For example, where parcel identifiers are available, they are not essential to the validity of any instrument that is duly recorded. In counties where parcel identifiers are available, the assessor is not required by law to use them. Although North Carolina is engaged in an ambitious land classification system pursuant to the Land Policy Act of 1974, discussed in detail below, it does not require that the classification be tied to the fledgling land classification system where it is available.

A provision of the new Illinois State Constitution of 1970 makes a gesture in favor of future cooperation by governmental agencies which conceivably could work to the benefit of MPLDS. Article VII, Section 10, of the Illinois Constitution, entitled "Intergovernmental Cooperation," states:

(a) Units of local government and school districts may contract or otherwise associate among themselves, with the State, with other states and their units of local government and school districts, and with the United States to obtain or share services and to exercise, combine, or transfer any power to function, in any manner not prohibited by law or by ordinance. Units of local government and school districts with individuals, associations, and corporations in any manner not

prohibited by law or by ordinance. Participating units of government may use their credit, revenues, and other resources to pay costs and to service debt related to intergovernmental activities.

(b) Officers and employees of units of local government and school districts may participate in intergovernmental activities authorized by their units of government without relinquishing their offices or positions.

(c) The State shall encourage intergovernmental cooperation and use its technical and financial resources to assist intergovernmental activities.

Also noteworthy is Ill. Rev. Stat. (1977) Ch. 127, § 186, et seq., which establishes a commission to encourage intergovernmental cooperation.

C. The duties of local recorders. -- An MPLDS clearly will require the cooperation of local recording officials if it is to include the contents of the real estate recording system and perhaps replace present indexing systems. How will the laws which govern the acts of recording officials have to be changed to implement MPLDS?

A threshold question is whether State constitutions will have to be changed to add or subtract from the legal responsibilities of recording officials. If State constitutions must be changed to facilitate MPLDS, its political and administrative feasibility may be hindered due to the cost and delay involved in submitting constitutional amendments to the electorate. On the other hand, it has been held that States cannot strip officials of powers granted them in State constitutions, on the theory that to do so would be a dilution or denial of the electorate's right to vote. In Davis v. Board of Supervisors of Saginaw County, 50 N.W. 862 (1891) for example, the constitutionality of a statute which called for the election of county highway commissioners by members of the county board of supervisors was challenged, given a constitutional provision calling for the popular election of highway commissioners. The Supreme Court of Michigan struck the legislation, noting that:

It is just as essential to local self-government that the functions of elective officers be preserved to such officers as that the right of election be protected; indeed, it is the local management of local concerns, by and through the medium of officers of their own selection, that is sought to be protected. Strip the officers of a municipality of their functions, and you rob the municipality of its vitality.  
50 N.W. 862, 863.



In Ex Parte Corliss, 114 N.W. 962, the Supreme Court of North Dakota had to consider the constitutionality of a law that created special commissioners to exercise "all of the common-law and statutory powers of state's attorneys in their respective counties in the enforcement of the law against the manufacture and sale of intoxicating liquors." Upon reviewing a wealth of cases examining the relationship between constitutional officers, on the one hand, and home rule provisions, on the other, the court found the legislation to be unconstitutional. In so doing, the court noted that:

we do not deny the power of the Legislature to prescribe duties for these officers, which power carries with it by implication the right to change such duties from time to time as the public welfare may demand; but we deny its power to strip such officers, even temporarily, of a portion of their inherent functions and transfer them to officers appointed by central authority. This, as we view it, is a plain violation of the Constitution, and is subversive of the obvious intent of its framers to reserve to the people of each county the right, through their elected officials, to enforce the criminal laws of the state, as well as to perform other functions of government by them so long performed and so well understood. It is apparent that the framers of the Constitution, by section 173 and other sections embodied to that instrument, intended to carry out a scheme of government by which the political subdivisions of the state known as "counties" should be given the right of local self-government, which should apply not only to local affairs of government, but also to confer upon the people of each county certain governmental functions in which the people of the entire state are also interest, We do not mean by this that the people of each county had delegated to them these functions unrestricted by proper legislative regulations, for, as we said before, it is competent for the legislative assembly to provide by law for removals in case of malfeasance or misfeasance in office, and to provide a method of filling such vacancies. But it is an entirely different proposition to say that the legislative assembly may go further and create a new office to be filled by central authority, and transfer to such appointive officer the duties essentially and constitutionally belonging to the county office. 114 N.W. 962, 965.

These cases would indicate that there may well be curbs on the power of a state legislature to transfer the duties of county recorders to another entity, or to "strip such offices, even temporarily, of a portion of their inherent functions" in the interest of establishing an MPLDS.

The constitutions of four of the seven States surveyed do not define the duties of county officers. Thus, in Iowa, North Carolina, Colorado, Vermont, and Oregon the state legislatures would have the most flexibility in altering the duties of county or local recorders to facilitate MPLDS.

In contrast, Article VII, Section 3 of the Illinois Constitution states that

(d) County officers shall have those duties, powers and functions provided by law and those provided by county ordinance. County officers shall have the duties, powers or functions derived from common law or historical precedent unless altered by law or county ordinance.

The fact that this section explicitly permits common law or historical duties to be "altered by law or county ordinance" would permit the State legislature to establish the MPLDS without resorting to a constitutional amendment.

Article V, Section 8 of the Oregon Constitution also refers to the duties of county officers, but in a manner which provides the legislature with control over their functions without the need for constitutional change. Pursuant to this section, "all county and city officers shall keep their respective offices at such places therein, and perform such duties, as may be prescribed by law." The reader should be aware that only seven State constitutions have been sampled in this study, and that there is a possibility that other State constitutions would prescribe the duties of county recorders and assessors in such a rigid manner that constitutional amendments might be necessary to facilitate the MPLDS.

What statutory changes would be necessary to facilitate creation of the MPLDS? State laws are explicit with respect to the duty of county recorders to keep certain indices, and these statutes would have to be changed if traditionally recorded real estate instruments were to be included in an MPLDS. For example, G.S. 161-21 and 161-22 prescribe how North Carolina registers of deeds are to keep a general index and cross-index of registered instruments; Article 10 of Title 30 of the Colorado Revised Statutes directs the county clerk, in his role as county recorder of deeds, to keep an alphabetized grantor/grantee index to each volume of records kept in his office; Chapter 75 of Title 24 of the Vermont Statutes Annotated directs the town clerk to keep an alphabetized grantor/grantee index; Section 28.22 of Chapter



28 of the Florida Statutes Annotated states which instruments shall be recorded in an alphabetical index by the clerk of the circuit court in his role as recorder of instruments; Chapter 735 of the Iowa Code provides recorders with the option of maintaining separate alphabetized indices for recording mortgages, releases, etc., or a combined index; Oregon recorders of deeds may keep either manual or computerized, alphabetical grantor/grantee indices.

The impact of existing law upon efforts to implement an MPLDS can be demonstrated in Illinois. As indicated above, Article VII, Section 3 of the Illinois Constitution states that county officers shall perform the duties, powers or functions "derived from common law or historical precedent unless altered by law or county ordinance." The use of parcel identifiers and MPLDS techniques probably is not inherent within the "duties, powers or functions derived from common law." The Illinois legislature has set forth the responsibilities of county recorders in Ill. Rev. Stat. (1977), Ch. 115, § 12, which directs recorders to keep seven categories of books: (1) entry book; (2) grantor's index; (3) grantee's index; (4) index to each book of record; (5) abstract or "tract" book (if required by the county board); (6) index to recorded maps, plats, and subdivisions; and (7) alphabetical index of parties against whom judgments have been rendered, and of parties named in notices recorded pursuant to suits in equity involving real property. None of these books, with the possible exception of abstract books occasionally required by county boards, is parcel-oriented. Consequently, an Illinois county recorder might decide that it would be beyond his authority to expend money on a parcel-oriented MPLDS system without a legislative amendment.

Section 12 of Chapter 115 also permits Illinois recorders to experiment with computerized systems and authorizes the replacement of manual recording systems with compatible systems which have proven successful over a period of six months. This is a step in the direction recommended by the Uniform Simplification of Land Transfers Act, whose draftsmen urged that recorders be statutorily authorized to do their job without being hamstrung by legislation as to how to do it. The permitted computerization, however, appears to be limited to the seven categories of books required of the recorder in Illinois. As such, the creation of an MPLDS in Illinois would require a more comprehensive enabling statute with respect to the participation of county recorders in computerized record-keeping.

In addition, Section 45 of the Illinois Conveyance Act designates the county recorders of deeds as the registrars of titles in their respective counties under the Torrens Act. The laws of two other states in the survey, Colorado and North Carolina, also provide for separate Torrens registration; generally speaking, the Torrens system is concentrated in metropolitan Chicago, Duluth, Minneapolis-St. Paul, and Boston. A network MPLDS enabling act could either permit the Torrens system, which calls upon the registrar of titles to determine the validity of a transfer prior to registration, to continue, or it could abolish the Torrens system for one that does not purport to give conclusive proof of title by way of certificate.

## II. Unrecorded Land Use and Environmental Data.

The laws of each State surveyed call for the generation of land use and environmental regulations and data by governmental entities. The regulatory matters include comprehensive land use and zoning plans, flood plain regulations, soil and water conservation district regulations, Federal ambient air and water quality standards, pollution discharge permits, permits to operate sanitary landfills and appropriate water for private use, coastal zone management and shoreline protection guidelines, and areas of "critical state concern" which receive additional regulatory protection under Section 380.05 of the Florida Environmental Land and Water Management Act due to being significant environmental, historical, natural, or archeological resources of regional or statewide importance. The environmental data being generated pursuant to State law include both State and Federal environmental impact statements, soil and water conservation district reports, and the type of inventory of land classification survey being prepared in North Carolina pursuant to its Land Policy Act of 1974. Recently, public concern about the "redlining" of urban areas by financial institutions has led to disclosure statutes such as the Illinois "Financial Institutions Disclosure Act," which generates data that reveals the amount of real estate investment occurring on a census tract by census tract basis.

Much of this information could be included in the MPLDS. In recent years, there has been a proliferation of land use and environmental regulations and required permits. See Bosselman, Fuerer, Siemon, The Permit Explosion: Coordination of the Proliferation, The Urban Law Institute, 1976. The MPLDS could furnish property owners and governmental agencies with extensive lists of the previously unrecorded restrictions which govern the use of land. It also is possible that more States will engage in survey efforts such as the one undertaken pursuant to the North Carolina Land Policy Act of 1974. The North Carolina General Assembly had found that:

...a lack of systematic collection, classification, and utilization of information regarding the land resources have led to inconsistencies in policy and inadequacies in planning for the present and future uses of the land resource. G.S. 113A-151(a)(2).

A stated goal of the legislation is to

Promote the development of systematic methods for the exchange of land-use, environmental, economic and social information among levels of government and among agencies at all levels of government. G.S. 113A-151(b)(6).



Among the duties of the North Carolina Land Policy Council are statutory commands:

(2) To define the cause to be prepared and periodically revised, a system of information and data concerning the land resources of the entire State, including, but not limited to, esthetic, economic, ecological, demographic, geologic, and physical conditions, both current and projected, as well as a continuing inventory of governmental and private needs and priorities for the use of land resources. All State agencies and units of local government including the register of deeds of each county shall make all pertinent data in their custody available to the Land Policy Council.

Section 156 of the Land Policy Act calls for the creation of a land classification system "which shall include comprehensive guidelines and policies and a method for the classification of all lands in the State...." The Land Policy Council is to adopt no fewer than four nor more than eight classifications "which recognize land as a basic social and natural resource," based upon the following aspects and characteristics of the lands of the state:

- (1) Topographic features such as land elevations and gradients.
- (2) Surface and underground waters, natural or artificial.
- (3) Geological, chemical, mineral and physical characteristics of the land.
- (4) The existing or potential utility of lands and sites having intrinsic historic, ecological, recreational, scenic or esthetic values or virtues.
- (5) The availability or potential availability of public service, including key facilities, health, education, and other community facilities and social services.
- (6) Areas of environmental concern, existing or potential key facilities, projects of regional impact, new communities, and large-scale development.

G.S. 113A-156(c).

It should be noted parenthetically that none of the seven States surveyed presently calls for the utilization of records kept by private entities such as title insurance companies. Certain title companies have extensive plants which store the same publicly recorded information kept by local governmental entities, but often in a manner which is more centralized, and which is more modern and efficient due to the use of computer technology.

Not all of the land use and environmental information presently generated by governmental bodies is parcel-specific in nature. For example, comprehensive land use and zoning plans, shore line protection regulations, and ambient air or water quality standards affect large geographical areas. Nonetheless, the MPLDS conceivably could be conceivably coded in such a way that the computer makes cross-references, by parcel, to the name or legal citation of all relevant regulations. Other information is parcel-specific and therefore could be easily accommodated in an MPLDS, such as: zoning variance and special use permits, sanitary landfill permits, and pollution discharge permits. North Carolina's ambitious land survey effort also could be accomplished in a parcel-specific manner. Nowhere does the North Carolina Land Policy Act require the adoption of the fledgling parcel-identifier system authorized by the State's land records modernization program found at G.S. 102-15. And while Section 156(c) calls for the inclusion of data concerning topographic features, waters, geological characteristics, and areas of environmental concern, it does not exhaust the full range of land and environmental data already generated by North Carolina law. Presumably, more data could be included once the land classification system is wed to an MPLDS using the parcel-identifier system.

The full range of land use and environmental data which could be included in an MPLDS is almost without limit. Land use planners, governmental agencies, and real estate developers should all be consulted in determining which information should first be included in the system. One thing is certain: the proliferation of zoning, subdivision, soil conservation, shoreline protection, and environmental regulations in the past twentyfive years has resulted in restrictions upon the use of land that are every bit as important as the types of data provided by title insurance companies to their customers. While every citizen presumably has notice of all duly enacted laws and regulations, as a practical matter it often is difficult to ascertain which laws are applicable to a given parcel. An MPLDS which included cross-references to all such regulations would certainly be a complex system, but one that would be helpful in an era of increasingly complex regulation concerning the use of land.

### III. Implementing MPLDS.

A. The impact of "Home Rule". -- The laws of five of the seven States surveyed feature "home rule" provisions for their cities or counties. "Home rule" often provides a qualifying municipal government or county with a wide degree of autonomy from the provisions of the municipal codes enacted by the State legislature. McQuillan on Municipal Corporations notes at § 4.28 that:

So far as legislative control is concerned over municipalities which have adopted home-rule charters, notwithstanding minor differences in the phraseology of constitutional provisions in the several states, for the most part there is little conflict as to the extent of legislative control in general over such municipalities as



hereinafter noted in this chapter, the principal conflict being not as to the general rule giving precedence to state statutes as to matters of state wide concern and precedence to home-rule charters as to matters of purely local concern, but instead as to what are matters of state wide concern and what are matters of purely local concern. Generally, except where otherwise provided by the constitution, matters of purely local concern are exempt from conflicting state legislation, but state laws control as to matters not purely of local concern, generally referred to as state affairs. (Emphasis added.)

While in some states municipalities which have adopted home-rule charters are no more fully protected against legislative interference than are municipalities organized under the general incorporation laws, in other states the legislature has much more power to regulate the affairs of cities created under a general statute than those of cities with a home-rule charter.

The threshold question regarding the impact of home rule would therefore appear to be whether the functions served by MPLDS would be a matter "of state wide concern or matters of purely local concern." If MPLDS is found to be a function of "purely local concerns," county recorders and assessors in home rule jurisdictions could legally resist cooperating with MPLDS implementation.

1. Constitutional and statutory provisions. -- The home rule provisions found in State constitutions often explicitly reflect the notion that home rule autonomy extends only to matters of purely local concern. For example, Article VII, Section 6 of the Illinois Constitution allows qualified units of local government to:

exercise any power and perform any function pertaining to its government and affairs, including, but not limited to, the power to regulate for the protection of public health, safety, morals and welfare. (Emphasis added.)

A new section of Article III of the Iowa Constitution was approved by the people of Iowa on November 7, 1978. The addition provides home rule for counties and joint county-municipal corporation governments:

Counties or joint county-municipal corporation governments are granted home rule power and authority, not inconsistent with the laws of the general assembly, to determine their local affairs and government, except that they shall not have power to levy and tax unless expressly authorized by the general assembly. (Emphasis added.)

Section 203 of the Oregon Revised Statutes provides for home rule for counties by providing that the governing body or the voters of the county by ordinance exercise authority within the county over matters of county concern to the fullest extent allowed by the Constitution and laws of the United States and Oregon.

Article XX, Section 6 of the Constitution of Colorado states that:

The people of each city or town of this state, having a population of two thousand inhabitants as determined by the last preceding census taken under the authority of the United States, the state of Colorado or said city or town, are hereby vested with, and they shall always have, power to make, amend, add to or replace the charter of said city or town, which shall be its organic law and extend to all its local municipal matters. (Emphasis added.)

It should be noted, however, that home rule powers do not extend to Colorado counties. As a result, the participation of Colorado county assessors or county clerks acting in their statutory roles as recorders of deeds would not be affected by these home rule provisions.

2. The dual role of county and municipal officers. Generally, it has been held that

although counties have the general characteristics of municipal corporations, they are not considered such unless made so by constitution or statute and, therefore, fall into the class of bodies politic, called quasi-public or quasi-municipal corporations organized to aid in the proper administration of state affairs with such powers and functions as the law prescribes. All the powers with which the county is entrusted are powers of the state, and the duties with which it is charged are duties of the state. McQuillan on Municipal Corporations, § 2.46.

The fact that counties are created to assist in the exercise of state as well as local functions receives further elaboration by McQuillan in § 2.46a:

[Counties] are organized as subordinate agencies of the state government for the purpose of exercising some of its functions, and not exclusively for the common benefit of the citizens or property holders within their boundaries.



McQuillan finds that the officers of municipal corporations, which by definition can include both cities and counties, are capable of classification into two categories:

- (1) those whose functions concern the whole state or its people generally, although territorially restricted, and
- (2) those whose powers and duties relate exclusively to matters of purely local concern. Ordinarily, where not otherwise provided by the constitution of the State, the legislature may control, to the exclusion of the municipal corporation, those municipal officers whose duties pertain to the state at large or to the general public, but may not, subject to certain exceptions, interfere with or regulate officers whose functions pertain exclusively to the municipality of which they are officers. However, the same officer may, in the exercise of some of his powers, act as a state officer and in the exercise of other powers act solely as a purely municipal officer, so far as legislative control is concerned.

It should be noted that, in the absence of constitutional prohibition, the State can impose schemes upon municipal officers and municipal corporations which require them to incur debts or assume obligations, provided that the duties performed relate to the service of the municipal corporation as agent for the State. See McQuillan on Municipal Corporations, supra § 4.159.

3. Home rule and the MPLDS. Given the concept that the officers of municipal corporations sometimes act in a State capacity and sometimes in a local capacity, how would a court characterize the duties of a county recorder in a home rule jurisdiction? Would these duties be deemed to be local in nature, giving the county government the opportunity to forbid the recorder's participations in an MPLDS?

There is a growing body of case law in Illinois which attempts to articulate where an activity is a matter of local government and affairs. This case law suggests that State legislation which seeks to promote the welfare of the entire State cannot be thwarted by the exercise of home-rule powers.

In one case, a home-rule unit attempted, by ordinance, to require the Metropolitan Sanitary District of Chicago (MSDC) to obtain a municipal permit as a prerequisite to the construction of an MSDC sewage plant. MSDC had already obtained the necessary permits from the Illinois Environmental Protection Agency. In an action for declaratory relief, the MSDC asserted that the environmental regulations of sewage treatment.

plants is a matter of statewide concern that does not pertain to the government and affairs of a home rule unit within the meaning of Section 6(a) of Article VII of the State constitution.

In its decision, Metropolitan Sanitary District v. City of Des Plaines, 63 Ill.2d 256 (1976), the Illinois Supreme Court held that "to permit a regional district to be regulated by a part of that region is incompatible with the purpose for which it was created." 63 Ill.2d at 261. The court based its decision, in part, on the awareness of the constitution's draftsmen that "control of air and water pollution, flood plains and sewage treatment are often cited as important examples of areas requiring regional or statewide standards and controls." 63 Ill.2d at 261. As a result, the court concluded that the constitution and its legislative history "cannot be read to indicate the intent of the framers that home rule municipalities have the power to regulate regional or statewide environmental problems." 63 Ill.2d at 261, 262. See also Des Plaines v. Chicago & N.W. Ry. Co., 65 Ill.2d 1 (1976), where the Illinois Supreme Court relied upon the following observation of the Local Government Committee of the Constitutional Convention in striking another municipal attempt to regulate environmental problems:

It is clear, . . . that the powers of home-rule units relate to their own problems, not to those of the state or nation.  
65 Ill.2d at p. 5.

These environmental law cases indicate that, if the MPLDS were a creature of State Law, it could be argued persuasively that the need for a statewide land data system should prevail against the claim of home-rule units that the activities of county recorders, assessors, and the like are solely a matter of local government and affairs. These environmental law cases are somewhat analogous in that one justification for an MPLDS is to provide a data system that facilitates environmental and health planning.

An Illinois appellate court decision provides another analogous fact situation in that the issues concerned the data-gathering roles of State and local police departments. In People v. Valentine, 50 Ill. App.3d 447 (1977), a municipality attempted to prevent a former policeman from expunging the record of his arrest for an alledged rape from official municipal records. The city sought to maintain these records because the former policeman had been acquitted of the crime, and he was now appealing the loss of his job. The former policeman was relying upon a State law which requires that photos, fingerprints, or other records of identification must be returned to a suspect upon acquittal, and that under certain circumstances, the acquitted party may have the record of his arrest expunged from official records of the arresting authority.

The municipality argued that this State law violated its power, as a home rule unit, to regulate its own affairs in matters relating to public health, safety, morals and welfare. The court responded:



...the statute here under consideration is an integral part of the comprehensive law of Illinois dealing with criminal law and procedure specifically criminal identification and investigation...and is a traditional area of state-wide legislation and concern....In other words, this is not an area pertaining to the government and affairs of the city, and therefore, an appropriate subject for the exercise of municipal home rule power.

While the home rule provisions of the Illinois Constitution of 1970 have changed the relationship of the State to home rule municipalities and counties in many respects...the State still retains the general power to control its political subdivision.

50 Ill. App.3d at 451, 452.

The Valentine case suggests that the State interest in uniform data gathering can pre-empt the claim of home rule municipalities that such matters are within the province of local government affairs. Thus, it would be helpful for the statute creating the MPLDS in Illinois or any other state to articulate the need for uniform statewide data recordation standards.

B. MPLDS enabling legislation. -- Given this examination of the laws of seven States, what should the MPLDS enabling act contain if it is to achieve the goals of a "network system?"

First, it should contain a legislative articulation of the need for state-wide participation in the MPLDS, and the need for standardization and uniformity in the resulting modernization of land data systems. By reciting the need for an MPLDS in conducting land use and environmental planning on a State and regional basis, the legislation would gain additional strength against legal attacks by uncooperative recorders and assessors in home rule jurisdictions.

Second, the enabling act needs to contemplate whether any substantive changes will be made in the real estate law of the jurisdiction. For example, if the adoption of a "network system" of an MPLDS becomes a political reality across the country, it would be an opportune time to consider the nationwide implementation of the Uniform Simplification of Land Transfer Act. The MPLDS enabling act also should contemplate either the inclusion of Torrens registration system documents in MPLDS, or the complete phasing out of the Torrens system.

Third, the enabling legislation should identify precisely what shall be included in the system. Perhaps the statute could aspire to construct the system in defined stages. The inclusion of previously unrecorded

data which will assist land use and environmental planning might best occur on a gradual basis, due to the novelty of the concept and the need to gain experience as to the costs involved.

Fourth, the enabling legislation should be explicit in requiring the assistance and cooperation of all governmental officers and entities which generate or record data which need to be included in the system. In addition to a call for intergovernmental cooperation, the statute should create a centralized agency with the authority to require such cooperation and to establish standards.

Fifth, the administering agency should serve as a source of both financial and technical assistance. North Carolina's experience in assisting the modernization of local land record systems should be given further study in designing the administration of the MPLDS system.



## PART FOUR

### Design and Use of the MPLDS From a Legal Standpoint

In previous Sections, analysis has focused on challenges to the MPLDS. Legally, no insuperable obstacles appear in terms of constitutional infirmities, conflicts with privacy statutes, or contrary public policy. Nor, after examining the jurisdictional aspects of the role of the Federal Government, along with the statutory basis for gathering land information in selected States, does it appear that legislative power is lacking or that revolutionary change is required to establish either system.

Given those conclusions, this Section focuses on constraints of a legal nature which may be relevant in weighing the comparative feasibility of the Federal survey and network MPLDS. For this purpose, a set of twelve criteria have been chosen. They relate to system capability, performance, ease of implementation, enforceability, and impact.

These criteria are intended to offer a basis for comparing the relative feasibility of the two systems in terms of which system may be better suited to monitoring foreign direct investment, monitoring commerce in land, serving tax, land use, and environmental information needs, serving transactional needs in dealing with land, and serving government's need to know about land generally. However, the discussion has been confined to the ability of the system to respond to such objectives. It does not extend to the substantive reforms that might be required to use the MPLDS for any particular purpose.

In contrast, most of the legal literature discussing multi-purpose land data systems to date has been primarily concerned with the need for substantive changes in land recordation.<sup>40/</sup> While such changes certainly are needed, they are not a prerequisite to the MPLDS. As other Chapters

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<sup>40/</sup> See Burke, Barlow Jr., "Governmental Intervention in the Conveyancing Process," 22 Am. U. L. Rev. 239 (1973); Leary, Fairfax Jr. and Blake, Donald G., "Twentieth Century Real Estate Business and Eighteenth Century Recording," 22 Am. U. L. Rev. 275 (1973); "Symposium: Computerization of Land Title Records," U. Cin. L. Rev. 43: 465-555 (1974).

indicate, it may well be that the MPLDS will develop on a modular basis. Adopting that perspective, the following criteria focus on the feasibility of the MPLDS as a means to an end.

1. Which System is Subject to More Impediments Because of Restrictions or Mandates Imposed by Law on the Offices Responsible.

As discussed in Part One, the federal survey may well collide with the Federal Privacy and Freedom of Information Acts if the system is person-specific as well as parcel-specific. Likewise, if all Federal agencies were required to report the land data they collect, impediments created in working out inter-agency changes in data gathering as well as cooperation agreements would be a factor. Lastly, no one Federal agency has yet been charged with the responsibility for comprehensive land data gathering.

These impediments are also present in the network MPLDS environment but to a lesser extent. At the local level, recorders, tax collectors, and agencies regulating land use now are collecting and organizing much of the data which would be included in the MPLDS data base. And, as discussed in Part Three, the legal restrictions and mandates applicable to their duties do not substantively rule out participation in a network. However, if the network is to work, the creation of a State office to direct and administer operations may be essential. In this connection, the recommendation of the Commissioners on Uniform State Laws that a State recording officer should be created to administer a parcel-specific land recordation system is significant.<sup>41/</sup> One advantage in taking this approach is that it could be tailored to overcome any legal impediments stemming from "home rule." As another plus factor, a State land data officer overseeing the network MPLDS could not only coordinate the diverse methods now employed at the local level in collecting data, but also pursue economies by mass purchasing.

Clearly, both systems face administrative impediments which may require legal solutions. However, implementing the Federal survey probably is subject to more potential constriction because of the Privacy and Freedom of Information Acts. In comparison, if the network MPLDS is viewed as an overlay or supplement to existing land information systems, the restrictions or mandates imposed on specific data collectors need not necessarily impede their use of the MPLDS for some purposes. For example, this type of permissive activity has been recognized in jurisdictions which permit the recorder to maintain a tract index, even though the grantor-grantee index may be the official index.

Conclusion. -- Implementation of the federal survey may demand that immediate and continuing accommodations be made with other agencies and privacy acts while the network MPLDS could enjoy peaceful coexistence within existing legal frameworks.

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<sup>41/</sup>"Uniform Simplification of Land Transfers Act (1977)," hereinafter referred to as USLTA. The American Bar Association approved USLTA on February 14, 1978. Also see "The Uniform Simplification of Land Transfers Act: Areas of Departure From State Law," 73 N.W. Univ. L. Rev. 359 (1978).



## 2. Which System has the Greater Capability to Serve Existing Statutory Functions and Legal Needs.

The significant factor here is a difference in kind. Although it is beyond the bounds of this analysis to detail all areas where the Federal government is now collecting land data, the character of the data generally is specific and in aid of regulatory or statistical purposes. Whether the Federal survey as proposed would serve these existing functions as well is problematical. However, under the network MPLDS, the raw data which would be collected and organized is data needed by the tax collector, local governmental authorities, and individuals in their current dealings with land.

In comparing the capability of each system to serve existing needs, the following list of items collected at various levels of government illustrates the kind of information a comprehensive MPLDS should index.

At the county level, the recorder collects deeds, mortgages, liens, assignments, lis pendens notices, fixture filings covering security interests in personal property, evidence of compliance with Plat Act requirements, easements, subdivision plats, and miscellaneous declarations. The tax assessor maintains information for assessments, tax bills, tax delinquencies, tax sales, tax redemptions, tax deeds, tax divisions, tax consolidations, tax exemptions, tax objections, and his own records describing the property. The county or special districts within the county also amass information relating to zoning, roads and highways, drainage, sewage, and water quality.

At the municipal level, information must be maintained dealing with special assessments for streets and other improvements, condemnation, zoning, annexations, street vacations, statutory liens in connection with demolition of unsafe buildings or nuisances, building code violations, fire code violations, sign restrictions, and land use planning.

At the State level, requisite land data may pertain to inheritance tax matters, condemnation, highway permits, environmental impact statements and permits, floodplains, and subdivision sales. At the Federal level, data banks may include information about residential transfers under the Real Estate Settlement Procedures Act, environmental impact statements, tax liens, geological, geophysical, and biological survey maps, interstate land sales, open housing, installment sales of land under the Truth in Lending Act, and, of course, the far-flung data about public lands.

From the enormity of this list, it may be problematical whether either system is capable of serving all needs. Further, although the network MPLDS plainly offers a knowledge base for Federal needs, the retrieval of that information for Federal uses may not be worth the effort.

Conclusion. -- Given the distinctly different character of the two systems, comparison of their relative capability to serve the status quo may be futile.

### 3. Which System Would be More Successful in Obtaining Data as to Beneficial Ownership.

As extensively discussed in Part One, reporting and disclosure requirements with respect to beneficial ownership of property probably poses the most complicated issue in analysing the impact of the MPLDS. Based on existing statutory patterns, the Federal survey probably would be structured to require reporting or response to questionnaires on a periodic basis. While disclosure could be obtained by these methods, implementation would necessitate initiative and effort, if more than a paper tiger is desired. Experience with Federal securities laws shows that effective surveillance demands continuing refinement of regulations as transactions become more complicated either for economic and business reasons or to evade disclosing. In contrast, identifying the beneficial owner under the network MPLDS might be made part of procedures for the transfer of title or tax collection. If part of tax collection, more or less current reporting could be achieved.

On the other hand, perhaps more resistance might be expected from the citizenry if routine disclosure of beneficial ownership were legally required as part of a network MPLDS. But, assuming such challenges could be dealt with, the prospects for obtaining a more complete picture of land ownership are better under the network MPLDS.

In terms of system capability to obtain data, the double thrust of the Iowa statute dealing with disclosure of control in corporate or partnership farming should be noted. Although reporting requirements with severe fines are imposed, a crosscheck is included. By subsequent amendment to the initial legislation, the grantee or lessee of a conveyance or lease of agricultural land is required to record within 180 days after the date of conveyance, and a recorder who receives a conveyance which is more than 180 days old is required to send the document to the county attorney who "shall initiate action in the district court to enforce provisions of this section."<sup>42/</sup>

Other precedent for requiring disclosure of the entity controlling land also can be found in various statutes and ordinances dealing with building permits, condominium developments,<sup>43/</sup> and zoning applications. However, if the system is to pierce the ownership entity, the only

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<sup>42/</sup> Iowa Code, Ch. 558. And see discussion in Part III, *supra*.

<sup>43/</sup> Chapter 100.2 of the Municipal Code of the City of Chicago, adopted December 21, 1977 under home rule powers, provides for the regulation of the sale and operation of condominiums. It requires a developer of more than six units to file a property report with the City and make it available to prospects before offering any unit for sale. Among the disclosures required is "a statement indicating name and address of the developer and legal and beneficial owner, if different, of the land and improvements, including all general partners of a partnership or principal executive officers and directors of a corporation." One property report examined by the authors for a large luxury residential project revealed that the owner was a Netherlands Antilles corporation. All directors had Italian surnames and could be addressed at the corporate office.



feasible way may be through separate statutory regulation of the entity. As noted in Part Three, existing laws ordinarily do not require corporate reporting to include land holdings. Thus, if the desired objective is to ascertain information about individuals controlling an entity, i.e., the "direct investment" data described in the Introduction to this Chapter independent regulatory legislation may be required to the same extent for the network MPLDS as under the Federal survey MPLDS.

Conclusion. -- The obstacles to insuring full and honest reporting are critical in evaluating which system would be more successful in obtaining disclosure of beneficial ownership. In this regard, the network MPLDS has more tools for collecting the information from more land owners.

#### 4. Which System Would be More Acceptable to the Legal Community.

To the extent that affirmative support has been manifested for either system, the legal community's approval of some features of the network MPLDS is evident in the Uniform Simplification of Land Transfers Act. In addition to the recommendation for the creation of a State recording officer for coordination of the modernization of the recording system, the introduction of "at least a limited geographic index" was recommended. Further support is evidenced by the American Bar Foundation's report of the proceedings of its conference on "Compatible Land Identifiers--The Problems, Prospects and Payoffs," known as "CLIPPP."<sup>44/</sup> The conclusion was:

We believe that it is in the interest of all agencies, organizations and institutions concerned with land information to do everything possible to initiate the recommended parcel-identifier system at once in several pilot counties. By putting the system into operation, the substantial benefit that compatible land identifiers will provide can be demonstrated and measured. Finally, the successful operation of these pilot projects will rapidly lead to comprehensive systems...which will provide even larger benefits to all users of land information.

The CLIPPP report also notes that legislation would be effective at the Federal level in connection with mapping. However, as the quoted statement indicates, the immediate need is to establish a parcel identification system at the local level. Other legal literature on the parcel

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<sup>44/</sup> Moyer, D. David and Fisher, Kenneth Paul, "Land Parcel Identifiers for Information Systems" (American Bar Foundation 1973).

identifiers is not extensive, but the commentators are in general agreement that a parcel-specific system is sorely needed for conveyancing purposes.<sup>45/</sup>

The interest of lawyers in a network MPLDS is understandable since their concerns are transaction-oriented. While government's use for data is evident from the list of items enumerated earlier, lawyers are the ones who perhaps have the most urgent need to be able to assemble all of that data at one time on one particular parcel. In the experience of the authors, almost any sizable commercial real estate transaction will entail review of the land information kept by the recorder, tax collector, and other local, State, and county governmental agencies.

In contrast, under the Federal survey MPLDS, the legal community's major concern with the system would hinge on the reporting requirements. For instance, if reporting of beneficial ownership were compulsory, counsel for every corporation would be obligated to make sure that the requirements had been complied with because such counsel is called on continually to render an opinion that the corporation is not in violation of any laws. If disclosure requirements became as complicated as those under the securities law, the Federal survey might well result in a specialized bar to deal with their impact.<sup>46/</sup> Beyond these observations, acceptability to the legal community does not appear to be a relevant consideration insofar as the Federal survey MPLDS is concerned.

Conclusion. -- Evaluating acceptability is subjective. To the extent that practical benefits affect attitudes, the network MPLDS has the edge. While not called for by this analysis, in the opinion of the authors as members of the legal community, the network MPLDS is the most sensible approach.

#### 5. Which System has More Access to Private Data Bases.

From activities over the last two decades, it would appear that the Federal Government, under authority of the commerce clause or the police power, could most easily gain access to private land data bases maintained by brokers, institutional investors, and federally insured lenders. On the other hand, it may well be that the States have more potential opportunity in this area. For example, data bases of varying degrees of usefulness are maintained by title companies, public utilities, brokers and lenders. Whether kept on a card file or in a sophisticated computer system, this data generally is retrievable on a parcel basis. In seeking data, Illinois' "redlining" Statute adopted in 1975 parallels the Federal Home Mortgage Disclosure Act. Since geographical distribution is all-important, this Act requires disclosure according to neighborhoods,

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<sup>45/</sup> See Note 1 above and also see Payne, John C., "Self-Indexing System in Action: A Preliminary Report," Alabama Law Review, Vol. 36, No. 64, p. 78, January 1975, and "Experiment in Public Land Record Indexing," American Bar Association Journal, Vol. 61, No. 735, June 1975.

<sup>46/</sup> That the interest in the impact of disclosure requirements affecting foreign investment has gone beyond the media outcry is evidenced by the ABA's offering of a course for practitioners entitled "Foreign Investment in U.S. Real Estate," ALI-ABA CLE Review, March 30, 1979.



meaning a zip code area, and census tracts. <sup>47/</sup> Institutions covered are any bank, insurance company, mortgage banking company, or savings and loan association which operates or has a place of business in the State.

While the capability of accessing private data bases under the Federal survey would require some type of independent reporting procedure, reporting under the network MPLDS could be tacked to licensing or annual reporting requirements applicable to the entity under State law. The availability of cooperative arrangements between local governments and private entities also should not be overlooked. In Chicago, for example, one of the title companies has a deputy recorder in residence and, in return, supplies the County with certain print outs from its data base.

Conclusion. -- In terms of the relevance of this criterion in comparing the feasibility of the two systems, if the network MPLDS were adopted, much of the desired information presumably would find its way into the data base through recording of transactions or ownership reporting by the parties involved. Consequently, the need for access to private data bases in the network MPLDS does not appear to be as great.

#### 6. Which System Enables More Access to Public Data Bases.

Apart from the specialized information gathered by the Federal Government under specific disclosure legislation and the statistical information collected by various agencies, public land data bases are maintained at the local level. Obviously, the collectors under the Federal survey could inspect these public data bases. However, without the cooperation of the local collectors, it would be difficult for the federal survey to gain easy access. And, if the Federal survey required the States to provide it with compilations of the raw data or a means of tapping information contained in the local data bases, the problem of interference with State sovereignty discussed in Part Two might well arise. In contrast, under the network MPLDS, the State, being the repository of authority for the land recordation, tax collection, and environmental systems, could easily dictate a means for combined use, not only vertically but horizontally. One precedent for enabling vertical access is the exchange of taxpayer information between the IRS and the States,<sup>48/</sup> although in this instance, the Federal Government provides the tool in the form of taxpayer identification numbers.

Conclusion. -- The feasibility of either system to access public data bases depends on whether a compatible means can be achieved. Thus, uniform parcel identification in public data bases at the State and local level would be an essential component for viable access by the Federal survey. That identification is the first step in the network MPLDS.

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<sup>47/</sup> Ill. Rev. Stat. Ch. 25, § 01, et seq.

<sup>48/</sup> CCH-Standard Federal Tax Reports ¶5209.576-577: Reg. § 301-6103.

## 7. Which System is Easier to Enforce.

This criteria has two aspects. One involves the effectiveness of the penalties which can be imposed for failure to supply data in encouraging compliance. The other is the effect remedies which might be available for unauthorized disclosure might have in an MPLDS where ownership data is to be kept confidential.

A. Looking first at penalties for non-compliance with the Federal survey, fines and imprisonment seem to be the likely alternative. If the Federal survey were instituted under the Census power, the following remedies would be available. Refusal or willful neglect to answer questions is punishable by a \$100 fine, a sixty day prison term, or both. Willfully giving a false answer is punishable by a \$500 fine, a one year prison term, or both. A catch all penalty provision also punishes whoever directly or indirectly offers any suggestion, advice, or information to any employee with the intent to cause an inaccurate enumeration of the population. It imposes a \$1,000 fine, a one year prison term, or both. Owners of apartment hotels, lodgings, etc., who refuse or willfully neglect to furnish information and give access to their property to census employees are subject to a \$500 fine. The owner, agent, or person in charge of a business or institution who refuses to answer questions relating to his business is fined \$500 and if such a person willfully give a false answer, the fine is \$10,000.<sup>49/</sup>

In comparison, where a nexus between the reporting and the activity which is the subject of the reporting exists, measures which encourage compliance are available. For example, under the Interstate Land Sales Full Disclosure Act,<sup>50/</sup> the failure of the seller to make the required disclosures gives the purchaser the right to rescind the transaction. Further, if the disclosure required to be filed by the developer appears to be incomplete or inaccurate, the Secretary of Housing and Urban Development can require a further filing. And if any disclosure contains an omission or untrue representation of fact, the Secretary may suspend the filing which, in effect, means that the developer sells at his peril. Civil liability and penalties also are imposed and the Secretary is granted access to the records of the developer.

Under the Bank Secrecy Act,<sup>51/</sup> discussed in Part One, willful violations of any regulation are subject to a civil penalty not to exceed \$1000, a criminal penalty of a fine of not more than \$1,000 or imprisonment for not more than one year or both. The Secretary of the Treasury also may seek injunctive relief if it appears to him that any person "has engaged or is about to engage in any acts or practices constituting a violation of any regulation...." If the willful violation, however, is committed in furtherance of the commission of any Federal felony, a more severe criminal penalty is available, with a fine up to \$10,000, up to five year's imprisonment or both.

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<sup>49/</sup> 13 U.S.C. Ch. 7 §§ 221-224.

<sup>50/</sup> 15 U.S.C. § 1701-1720.

<sup>51/</sup> 12 U.S.C. § 1951 et seq.



Based on these examples, the Census Act and the Bank Secrecy Act probably offer the closest models for penalties for failure to supply data under the Federal survey MPLDS. Additionally, if the data were useful to enforcement of other Federal laws, the risk that a failure to disclose might trigger investigation under those laws may contribute a deterrent.

With respect to the enforceability of the network MPLDS, the traditional way for States to enforce disclosure requirements in connection with land recordation is the simple expedient of denying recording unless the information is provided. Fines, imprisonment, and the right to injunctive relief are also frequently found in State statutes but the need for resorting to such penalties is obviated where protecting a claim by recording is at stake. Insofar as reporting by entities is concerned, State licensing statutes and corporation codes typically permit revocation of the license or the charter for failure to comply with their provisions.

Conclusion. -- In terms of enforcing compliance, the network MPLDS offers preventive measures. The Federal survey MPLDS, on the other hand, would have to rely on the threat of punishment as a deterrent.

B. Turning to the other aspect of enforcement, the new "Right to Financial Privacy Act"<sup>52/</sup> is instructive on the question of penalties for unauthorized disclosure by government collectors in a situation involving financial data.

It provides that "Any agency or department of the United States or financial institution obtaining or disclosing financial records or information" otherwise than as permitted by the Act "is liable to the customer" for (1) \$100, (2) actual damages resulting from the disclosure (3) punitive damages the court may allow, where the violation is willful or intentional, and (4) costs of suit and attorneys' fees. The right to injunctive relief available is again with costs of suit and attorneys' fee. Further, if the government is found guilty and "the court finds that the circumstances...raise questions of whether the government official or employee acted willfully or intentionally, a disciplinary proceeding must be initiated.

To the extent that the Federal survey may require reporting of ownership on a confidential basis, this Act may signal the types of penalties for unauthorized disclosure which would be favored. If the Federal survey were implemented under the Census Act, current penalties for wrongful disclosure by an employee are punishable by a fine, prison term or both.<sup>53/</sup>

Penalties for unauthorized disclosures similar to these also might be used in connection with the institution of a network MPLDS. But, whether all states would countenance a right to recover actual and punitive damages against the agency is open to question. A potential plaintiff

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<sup>52/</sup> 12 U.S.C. § 3401 et seq.

<sup>53/</sup> 13 U.S.C. Ch. 7, § 214.

might well be plagued with the doctrine of sovereign immunity and find himself unable to assert any claim against the State.

Conclusion. -- The real question posed by penalties for unauthorized disclosure is whether compliance with disclosure under one system would be easier to obtain because the reporting party is protected to the extent the information is deemed confidential. In this regard, whichever system gave the right to recover actual damages from the government would have the advantage.

#### 8. Which System has the Greater Potential for Impact on Legal Transactions.

Insofar as the Federal survey MPLDS is concerned, virtually no impact on legal transactions might be expected, apart from having to comply with reporting requirements.

With respect to the network MPLDS, the impact will depend chiefly on whether substantive reform accompanies the institution of the MPLDS. For exhaustive discussions of the procedures that could be affected by use of the parcel identification number, the legal literature previously cited is informative. A plus factor in terms of impact certainly is the ease of access to information about a particular parcel, as has been noted before.

One adverse impact which the network MPLDS might have depends on whether all claims against land would have to be parcel-specific to be protected. For instance, judgment creditors commonly enjoy a lien against all lands owned by the judgment debtor. Nor is it necessary for the judgment creditor to identify those lands when filing a notice of his lien in the place where the debtor resides. Thus, if parcel identification were required as a prerequisite to the validity of a judgment lien, creditors would be impacted.

On this point, the progressive view under the status quo is that the creditor has the means to ascertain what property the debtor owns and, therefore, he should be required to file a parcel specific lien. On the other hand, creditors arguably have grounds to object, particularly in the case of default judgments where the debtor is not to be found for discovery. However, as noted at the outset, these types of questions involve reforms in substantive law and do not necessarily affect the feasibility of the MPLDS as a substitute system for organizing the land information which is now collected.

One of the leading commentators on land parcel identifiers, Paul Basye, has made it clear that the legal ramifications of establishing a parcel identifier, which is the core of the MPLDS, need not be overwhelming initially.<sup>54/</sup> According to Basye, the bare essentials

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<sup>54/</sup> Basye, Paul E., "A Uniform Land Parcel Identifier - Its Potential for All Our Land Records," 22 Am. U. L. Rev. 251 (1973).



for setting up a system are a nationwide uniform system of identifying property and a national standard for assigning parcel identification numbers. He suggests that such numbers identify the state, county, established points of reference within the county, and the parcel. Contrary to some proponents of the MPLDS, Basye sees no necessity for a new survey as a condition of instituting the system. He points out that the parcel identification number will not determine precise boundaries but can simply identify the land claimed by reference to the prior deed of conveyance. Likewise, the parcel identification number can be modified when a merger or subdivision occurs so long as that contingency is provided for in setting up the numbering system.

In his view, the remaining essentials from a legal standpoint are that use of the number by all jurisdictions must be compulsory, a public official must be designated to assign the numbers, and the use of the numbers on legal documents must be compulsory.

Conclusion. -- With the Basye minimums, the network MPLDS has as much potential for impact on legal transactions as the particular jurisdiction may decide to permit. Given the statistical orientation for the Federal survey, little, if any, potential for impact on legal transactions can be discerned.

#### 9. Which System Involves More Functional Changes in Current Law and Practice in Land Transactions.

As has been repeatedly noted, the network MPLDS can co-exist with presnet land information systems. Nevertheless, other participants in the Study have indicated that the initial multi-purpose land data system should be designed to perform some new functions. These include disclosure of non-record interests, aggregation of all data collected by other agencies and improvement of means of access.

Reviewing these proposals against the Federal survey, reporting of non-record interests could, of course, be obtained by specific questions or a sampling. With respect to compiling transaction data gathered by other agencies, as in the case of the Interstate Land Sales Full Disclosure Act, securities registration for condominiums, and environmental impact reports, regulations may have to be changed to require parcel-specific identification if it is to be included in the Federal data base. Functional changes undoubtedly would also be necessary to obtain data with respect to public lands, including identification of the private interests that have been granted by the Government. In terms of improving access, present access to land data collected by Federal agencies generally is confined to an agency basis or to obtaining the various statistical reports. If access to the raw data were to be made freely available so that the Federal survey could serve multi-purpose uses, presumably new administrative machinery would be required. Depending on the desired degree of accessibility, the old Federal land office might again become a part of local landscapes.

Reviewing these proposals against the network MPLDS, disclosure of non-record interests would require at the outset the adoption of notice filings. As far as functional changes in practice which would result if non-record interests were required to be disclosed, the most common examples of transactions not now reported are leases and installment contracts. Notice filings to preserve an interest however are not novel. For example, In Illinois, express provision is made for non-record claimants to file simple notices with the recorder in connection with mortgage foreclosures.<sup>55/</sup>

Probably the most widespread notice filing system is that adopted by the Uniform Commercial Code (UCC). Fixture filings covering personal property attached to the land are made with the recorder of the local jurisdiction where the land is located. Notice filings under the UCC, known as financing statements, are brief and to the point. The names and addresses of the debtor and creditor, the property in which the interest is claimed and its location are disclosed. In many transactions, the financing statement will make reference to a security agreement which contains the substantive terms governing the security interest. This type of notice filing is not only now widely accepted, but would be adaptable to notice filings of non-record interests in the MPLDS as well as other documents affecting the real estate, with the documents themselves to be maintained separately by the recorder or, in the case of judgments, by the clerk of court.

Nevertheless, inconsidering what legal effect should be given to failure to index non-record interests, note must be taken of the judicial attitude toward recognizing certain non-record interests. Even under the Torrens system of title registration, the courts have refused to withdraw the common law protection in favor of one in possession of the real estate or one enjoying easements of necessity or implication. Nor, in Illinois, can a Torrens title registration deprive the State of property rights since to do so would be an infringement of sovereign immunity.<sup>56/</sup>

Insofar as securing input from local sources of land data is concerned, a workable system may require the creation of a new State official, as recommended in the USLTA. Otherwise, intergovernmental cooperation agreements are possible. In this regard, one of the main issues may be what agency owns the hardware and pays for the software development and maintenance. Such issues might be relatively easy to resolve among the offices in one county but, if the State and Federal agencies also participate in the network, cost-sharing arrangements may be more complicated. With regard to improving present means of access, the central data bank at the core of the network MPLDS is an obvious improvement.

Conclusion. -- In evaluating the extent of functional changes required under each system, it can once again be observed that the problems are chiefly administrative rather than legal. As one commentator has emphasized,

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<sup>55/</sup> Ill. Rev. Stat. Ch. 95, § 23.2.

<sup>56/</sup> For an informative discussion of judicial reactions to title registration see Knight, Charles D., "A Fly-Specker's Manual for the Illinois Torrens Act," Ill. L. Forum, Vol. 1978, No. 2 (1978).



it is, however, essential to recognize that efficiency and adaptability to local conditions is an important consideration.<sup>57/</sup>

10. Which system Better Serves the Governmental and Legal Purposes for Which Data are Collected.

This criterion might be restated in terms of which system is better designed to serve multiple purposes. The Federal survey, as contemplated, is designed to acquire information for statistical purposes. The network system collects raw primary data which can be useful for private legal transactions, tax collections, environmental purposes, government regulations, planning and law enforcement.

For purposes of this analysis, a further question also must be asked, i.e., which system is best for monitoring foreign investment. If the purpose of the monitoring is to assess the extent of such investment on a constant basis, the data collected in a network MPLDS would be productive. If the purpose is to obtain a periodic sampling or to insure reporting only by non-resident aliens, the Federal survey approach may have more utility.

Conclusion. -- The network MPLDS obviously serves more purposes. However, whether it is compatible with statistical efforts or Federal regulatory purposes is a question the technicians and the regulators must resolve. Both of these observations also apply to the relative feasibility of the two system to monitor foreign direct investment.

11. Which System Exposes the Collectors and Custodians of Land Data to More Potential Liability.

Apart from liability for failure to maintain confidentiality, as discussed above, would collectors of land data have a standard of care to observe in organizing the data so that retrieval on the basis of using the parcel identifier is free from error? The USLTA anticipated this problem. In dealing with the uniform land recordation system, it suggests two approaches, which are not mutually exclusive. One is that the State or county be subject to liability to a person injured by the failure of the recording officer must carry a million dollars in for liability insurance failure to perform his duties. The other is that the State or county be subject to liability to a person injured by the failure of the recording officer to index properly. According to the USLTA commentary, the liability insurance recommendation is designed to give the single-family homeowner and small businessman adequate protection. The other alternative is intended to give such assurance to all persons dealing with the recording officer. At the same time, however, the USLTA recognizes that the parties have some obligation. It places the responsibility for verifying that the parcel identification number is accurate on the party presenting the document for filing.

Given the statistical purpose of the Federal survey, this criterion would have little applicability since parties could not be injured by a failure to organize the information properly. However, if the Federal survey

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<sup>57/</sup> See Note 6.

data was used for regulatory purposes and an "innocent" party were subjected to harassment because the information was wrongly filed under his parcel number, he might seek redress.

Conclusion. -- The network MPLDS has the greater potential for liability insofar as collectors and custodians are concerned. Whether the risk is any greater than under the status quo will depend on the substantive effect given the MPLDS index. If the party is entitled to rely on the MPLDS, the law as to common law liability of recorders undoubtedly would be invoked.<sup>58/</sup>

## 12. Which System is Better for Maintaining Confidentiality of Data

For purposes of legal analysis, the criterion raises a more or less theoretical question since both the technical design and the legislative standard of care with respect to each system would have to be considered and compared. The characteristics of the two systems suggest the conceptual answer to which is better.

Conclusion. -- If confidentiality is a paramount concern, the Federal survey obviously is better, since the likelihood of disclosure in a statistical setting is less. Beyond that, use of the data may or may not be protected under the Privacy and Freedom of Information Acts. However, as noted in Part One, if protections were required in connection with the network MPLDS, its operation might be severely hampered.

### Summary

The weight to be given the foregoing criteria in determining the comparative feasibility of the Federal survey and network MPLDS is judgment Congress must make. The constraints from a legal standpoint to which one system may be subject are not the same for the other system. As the dialogue on the criteria suggests, Congressional objectives are the most significant factor in arriving at the design and use of the ultimate MPLDS.

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<sup>58/</sup> See 66 Am. Jur. 2d Records and Recording Laws § 195 et seq. As a general rule, recorders are held liable for negligence in failing to record, failing to index where indexes are required to be kept by law, and for negligent mistakes and errors which result in injury.



## STATE OF THE ART SURVEY

The following summaries of State constitutions and statutes concerning land data gathering were compiled from the official reports of the laws for the selected States which were available during the period from December, 1978 to early March, 1979. Accordingly, newly enacted statutes, if any, not reported as of the date of review would not be included. The summaries are intended to provide an overview of patterns in State data gathering and should not be considered to be complete indexes of all laws in the selected jurisdictions which may relate to land data gathering.

### IOWA

#### I. Observations

This section surveys Iowa statutes which require the collection of land data at the State and county level. Iowa was chosen to be included in this state of the art survey because of its recent strict legislation which imposes reporting and other requirements on partnerships and corporations dealing in agricultural land.

#### II. Survey of Iowa Real Property Data Systems

##### A. Traditional Real Estate Documentation

The Iowa Conveyance Act, Chapter 558 of the Code of Iowa, states that evidence of title to real estate shall be filed with the recorder of deeds of the county in which the real estate is situated. The recording is constructive notice to all persons. The recordation is not mandatory except for conveyances or leases of agricultural land. Failure to record a conveyance or lease of agricultural land required to be recorded by the grantee or lessee is punishable by a fine. The grantee or lessee of a conveyance or lease of agricultural land is required to record his conveyance or lease within one hundred eighty days after the date of conveyance or lease. Leases of agricultural land which do not exceed five years in duration with renewals are excluded.

Conveyances and leases to nonresident aliens must disclose by affidavit (to be recorded also) the name, address, and citizenship of the nonresident alien owner. Failure to record a conveyance or lease of agricultural land required to be recorded is punishable by a fine of one hundred dollars per day for each day of violation. Failure to timely record does not invalidate an otherwise valid conveyance or lease. The county recorder is obligated to record a conveyance or lease of agricultural land presented for recording even though it is not presented within the one hundred eighty days after the date of conveyance or lease.

The county recorder is obligated to record a conveyance or lease of agricultural land presented for recording even though it is not presented within the one hundred eighty days after the date of conveyance or lease. The county recorder, however, is required to forward to the county attorney a copy of each conveyance or lease of agricultural land recorded more than one hundred eighty days from the date of conveyance. Chapter 558 further directs the county attorney to initiate action in the district court to enforce the provisions of the sections which require mandatory recordation of conveyances and leases of agricultural land.

The chapter provides forms of conveyance for a quit claim deed, a deed in fee simple without warranty, a deed in fee with warranty, and a mortgage. The instrument by which real property is conveyed must be acknowledged. Acknowledgements outside of the State of Iowa must be accompanied by a certificate of authenticity. Acknowledgement of instruments affecting real estate is a condition precedent to lawful recordation. Instruments which are not required in bankruptcy, decrees of adjudication in bankruptcy, UCC financing statements, and financing statement changes. Affidavits explaining any defect in the chain of title to real estate may be recorded as instruments affecting real property, but only the owner in possession has the right to file the affidavit.

Since Section 515.48(10) of the Code of Iowa prohibits title insurance, the Iowa State Bar Association adopts certain "Iowa Land Title Examination Standards" which are published in an appendix to Chapter 558. The eighty-seven standards established in the current edition provide guidelines for Iowa lawyers for preparing abstracts, deeds, mortgages, etc.

Other documents which are recorded in Iowa are the following:

1. Plats--Chapter 409 of the Code of Iowa provides that a plat of subdivision shall be drawn for any subdivision into 3 or more parts of a property less than 40 acres, or of more than 40 acres with parcels any of which is less than 40 acres, or any tract of any size which is in a city or within two miles of a city. The plat is to be recorded prior to conveyance. Each plat is to be accompanied by an abstract of title and attorney's opinions showing that fee title is in the owner and the land is free from encumbrance (or is free from encumbrance other than that secured by a bond as provided in Chapter 409), by a statement from the county treasurer that it is free from taxes, and by a statement from the clerk of the district court that it is free from all judgments, attachments, and liens, and by a statement from the county recorder that the title in fee is in the owner and free from encumbrances (other than encumbrances secured by bond). Municipal approval is required as a condition of recording for all plats located within a city of 25,000 or more or within a city requiring such approval by adoption of rules and those plats within two miles of such cities. Such recording is equivalent to a deed in fee simple of the portions set aside for streets or dedicated to charitable or educational purposes.



However, no plat or addition to any city in which streets, alleys and other public grounds are sought to be dedicated to public use shall be entered by the county auditor in his books unless the plat has the approval of the council of such city. See Chapter 558, Section 65.

2. Lis pendens.--Chapter 617 provides that when a petition affecting real estate is filed, the clerk of the district court where the petition is filed is to index the petition in an index book to be provided for the purpose, under the tract number which describes the property. The index then is parcel specific. When the cause is finally determined, the result is to be indicated in the book. As indexed, the action is considered pending so as to charge all third persons with notice of its pendency, and so as to bind all subsequent purchasers.

3. Highways.--Chapter 306 provides that road plans and diagrams of water, sewerage and electric powerlines for rural subdivisions are to be recorded with the county auditor and approved by the county engineer before the subdivision is laid out. If the subdivision is within one mile of corporate limits, the road plans also must be approved by the municipality.

4. Homesteads.--Pursuant to the benefits provided by Iowa law for homesteads, Chapter 561 provides that owners of a house used as a home may select the homestead and cause it to be platted, designated by a legal description, and recorded by the county recorder in the homestead book, which is to be kept in the form of the record book for deeds, with determination of what property comprises the homestead. Failure to select the homestead does not take away any rights of the owner.

5. Co-operative associations.--Chapter 497 provides for the conducting of agricultural, dairy, mining, mercantile, manufacturing, or mechanical business on the co-operative plan. The articles of incorporation of a co-operative association are to be filed with the Secretary of State. The Secretary of State is to forward the articles to the county recorder of the county where the principal place of business (as designated by the association) is to be located. Reports of dissolution and articles of merger or consolidation also are to be filed with the county recorder.

6. Multiple housing.--Chapter 499A provides for the ownership of residential or business property on a co-operative basis. The powers include the power to build and construct apartment houses or dwellings, power to acquire or hold interest in real property, and power to dispose of property. Articles of co-operation are to be filed with the Secretary of State, who forwards them to the county recorder for recording in the county where the principal place of business (designated by the co-operative) is located.

7. Horizontal property (condominiums).--Chapter 499B states that when the owners or lessees desire to submit a parcel of real property upon which a building is or is to be located to the horizontal property regime, a declaration is to be executed and recorded in the county recorder's office of the county in which the property lies. The declaration is to include the following: (1) a description of the land and building, stating the number of stories, basements, apartments, and the principal materials of construction;

(2) the apartment number of each apartment, its location, area, number of rooms, and common area to which it has access; (3) description of common elements and facilities; (4) the fractional interest of each apartment and its number of votes; and (5) the method by which the declaration may be amended. Floor plans and by-laws are to be attached to the declaration when it is filed.

8. Filings by miscellaneous creditors.--Chapter 572 provides that every person who furnishes material or labor for, or performs labor on, any building or land for improvement or alteration shall have a lien upon such building or improvement and land. However, no person is entitled to a lien if he has taken any collateral security on such contract before the completion of the work. The entire land upon which the building or improvement is situated is subject to the lien. Each person who wishes to avail himself of a mechanic's lien must file with the clerk of the district court of the county in which the land is situated a verified statement of his demand which sets forth the time when the material or labor was provided and completed, and a correct description of the property to be charged with the lien. So the lien is parcel specific. The clerk of the court is required to keep a mechanic's lien book for the purpose of maintaining a record of claims, and to make and record an abstract of each claim.

Chapter 514 provides that each laborer or minor who performs in a mine shall have a lien for the full value of such labor upon all the property of the owner of the mine, including all real estate. The liens are to be secured and enforced in the same manner as a mechanic's lien.

Iowa has adopted the Uniform Commercial Code. Chapter 554, Section 9401, states that the proper place to file a fixture filing to perfect a security interest is the office where a mortgage on the real estate would be filed or recorded--that is, the county recorder of the county in which the real property containing the fixtures is located. Section 9402(5) provides that fixture filings must contain a description of the real estate; thus, they are parcel-specific.

The code of Iowa provides various liens against real property for the State, county, and Federal Governments. Chapter 445, Section 28, provides that taxes upon real estate shall be a lien thereon against all persons except the State. Section 29 provides that taxes due from any person upon personal property shall be a lien upon any and all real estate owned by the person and situated in the county in which the tax is levied. In addition, Chapter 455, Section 68, provides a lien of assessments for levees and drainage as if they were taxes imposed by the State or county. Chapter 422, "Income, Corporation, Sales, and Bank Tax Act", provides in Section 26 that unpaid taxes, interest, and penalties shall be a lien in favor of the State upon all property belonging to the taxpayer. The lien attaches at the time the tax becomes due and payable and continues until the liability for the amount is satisfied. To preserve the lien against subsequent purchases without notice of the lien, the director of revenue is required to file a notice of the lien with the county recorder in the county in which the property is located. The county recorder is required to prepare and keep an index of tax liens, in which liens are to be recorded in the manner provided for recording real estate mortgages. The index is to be arranged alphabetically under the names of taxpayers.



9. Real estate transfer tax.--Chapter 428A imposes on the grantor of real estate a tax of fifty-five cents for each five hundred dollars of the value of the real estate transferred, with exceptions. The county recorder is instructed to refuse to record any deed on which documentary stamps in the amount evidencing payment of the tax have not been affixed. The county recorder is required to keep such records and make such reports with respect to the sale of documentary stamps as the director of revenue may require.
10. Corporate reporting.--Chapter 496A provides that articles of incorporation are to be filed with the Secretary of State and recorded in the office of the county recorder. Corporations are authorized to acquire and dispose of real property. Annual reports are required to be filed; foreign corporations are required to file a statement of the fair and reasonable value of all property employed and used in Iowa when the corporation elects to pay the license fee on the basis of its entire stated capital; however, no details as to type or location of the property are required. (However, see Section II E "Aliens"). Chapter 491, Section 67, provides that corporations organized in any foreign country, or corporations organized in the U.S., the stock of which is owned in whole or in part by nonresident aliens, shall have the same rights, powers, and privileges with regard to the purchase and ownership of real estate in Iowa as are granted to nonresident aliens in Section 567.2. This assurance appears to conflict with the burdens imposed by chapter 172C of the Code of Iowa, discussed in Section II E "Aliens".
11. Disputed boundaries.--Chapter 650 of the Code of Iowa provides that any lost or disputed boundary may be determined by written agreement of all parties affected. The agreement is to be signed and acknowledged by each party and accompanied by a plat thereof. The Code provides that the agreement shall be recorded as an instrument affecting real estate and is binding upon the heirs, assigns, and successors of the parties.
12. Assignment for benefit of creditors.--Chapter 681 provides that an assignment for benefit of creditors is to be an instrument in writing setting forth the name of the assignor, his residence and business, the property assigned, its location, and the purpose of the assignment. The instrument is to be signed and acknowledged in the manner prescribed for the execution and acknowledgement of deeds, and recorded in the office of the recorder of the county where the assignor resides, and in any other Iowa county where he has real property subject to the assignment.
13. Acquisition of title by state or municipal corporation.--Chapter 569 provides that when a State or municipal corporation acquires real estate on account of a debt, the deed of conveyance is to be approved by the organization, and the approval is to be made part of the minutes. A certified transcript of the minutes shall be entitled to be recorded in the same manner as the approved instrument is entitled to be recorded.

14. Powers of appointment.--Chapter 559 provides that the donee may release his power by execution of a written instrument. The release is deemed delivered when the instrument is recorded if the instrument is executed and acknowledged in the manner provided for the execution and acknowledgment of instruments affecting real estate and recorded in the county in which the donee resides or in the county in which any real estate which may be subject to the power is located.

15. Registration of farms.--Chapter 557 provides that any owner of an Iowa farm may have the name of the farm and its description recorded in a register which is kept for the purpose of registering farms in the office of the county recorder of the county in which the farm is located.

16. Limited partnerships.--Chapter 545, the Uniform Limited Partnership Act (with variations), provides that if two or more persons desire to form a limited partnership, they shall sign and acknowledge a certificate and file the certificate in the office of the county recorder where the principal place of business is located. The certificate, which is to be recorded in the miscellaneous records and indexed in the names of all the signers, as grantors and grantees, is to include information as to the name and residence of each general and limited partner, designated as such, description and value of property, and respective share in the profits. Limited partnerships are empowered to take, hold, encumber, lease, and convey real estate in the firm name. If less than all of the general partners are empowered to sign instruments relating to real estate, this fact must be stated in the certificate of partnership or in a statement signed and acknowledged by the general partners and recorded in the office of the recorder of deeds in the county in which the real estate is situated.

17. Fences.--Chapter 113 of the Code of Iowa provides procedures as to fences. Owners of adjoining tracts of land may agree in writing upon the portion of partition fences between their land which shall be erected and maintained by each. The writing is to describe the lands and the parts of the fences so assigned, be signed and acknowledged by the owners, and filed and recorded in the office of the recorder of deeds of the county or counties in which the lands are situated. If, however, the owners are unable to agree, the Code provides for fence viewers whose duty is to determine any controversy regarding fences. Orders and decisions made by the fence viewers requiring owners to erect, maintain, or cut back any fence are to be in writing, signed by the fence viewers, and filed with the township clerk. A copy of such orders is to be certified by the township clerk to the county recorder. The recorder is to record the order in his office in a book kept for fence orders and is to index the record in the name of each adjoining owner as grantor to the other.

18. Conservation easements.--Chapter 111D provides for the acquisition of conservation easements by Iowa governmental agencies by means other than eminent domain. Conservation easements are to be recorded as other instruments affecting real estate are recorded. Unrecorded conservation easements are deemed abandoned.



19. State preserves.--Chapter 111B provides that articles of dedication of state preserves be recorded with the county recorder for the county or counties in which the area is located.

20. Oil and gas wells.--Chapter 84 provides that when a recorded oil or gas lease given on Iowa land is forfeited because the lessee has failed to comply with the terms of the lease or Iowa law, the lessee has the duty to have the lease surrendered in writing, acknowledged, and placed on record in the county where the leased land is situated. The owner may file and record an affidavit of noncompliance if the lessee fails to record the lease. If the lessee still neglects or refuses to execute the release, or contends that the lease is still in force, the owner of the leased premises may sue to obtain the release, recovering costs, attorneys fees, one hundred dollars, and any additional damages.

21. Eminent domain.--Chapter 472 provides that the sheriff or clerk of the district court is required to file certain information with the county recorder of the county in which condemned land is situated following the final determination of condemnation proceedings. The information to be filed includes the application for condemnation, notices, reports, and a statement of the money received. The application which was filed with the chief judge of the judicial district of the county in which the land sought to be condemned was located contains a description of the parcel condemned by its congressional numbers or, if the land consists of city lots, by the numbers of the lot and block, and plat designation.

22. Easements.--Chapter 564 provides that owners of land may give notice to anyone who claims an easement on such land, indicating intent to dispute any right arising from such claim. If the notice is served on the claimant and recorded in the recorder's office of the county in which the land is situated, it operates as an interruption of the use of the land by the claimant and prevents the acquiring of any right thereto.

23. Forfeiture of real estate contracts.--Chapter 656 provides a procedure for the forfeiture of contracts for the sale of Iowa real property. Such contracts are not to be forfeited or cancelled unless the provisions of the chapter are complied with. Certain notice and service requirements are set out; if the terms and conditions as to which there is default are not performed within 30 days, the party serving the notice may file the notice and proofs of service with the county recorder. When filed and recorded, the record shall be constructive notice to all parties of the due forfeiture and cancellation of the contract.

24. Satisfaction of mortgage.--Chapter 655 provides that when a judgment of foreclosure is entered in any court, the clerk shall file with the recorder an instrument in writing referring to the mortgage and acknowledging that it was foreclosed. When the judgment is fully paid and satisfied, the clerk is to file with the recorder an instrument in writing which refers to the mortgage and acknowledges a satisfaction of it.

25. Limitation of actions,--Chapter 614 provides that no action based upon any claim arising or existing prior to January 1, 1960, is to be maintained to recover any Iowa real property or to recover or establish any interest in Iowa real property against the holder of record title when the holder is shown by the record to have held chain of title to such estate since January 1, 1960. Exception to this rule is made for claimants who file within one year from January 1, 1970, in the office of the recorder of deeds of the county where the property is located a statement of writing duly acknowledged, which definitely describes the property involved, the nature and extent of the right or interest claimed, and the facts upon which the claim is based. These claims are to be indexed under the description of the real estate involved (parcel specific) in a book set apart and specifically designed for that purpose. The book is to be known as the "claimants book" designed for that purpose and kept in the office of the recorder of the county where such property is located. The claim is to be recorded as other instruments affecting real estate.

B. County Recorder

Chapter 335 provides that the recorder shall record all instruments in writing which may be delivered to him for record. The record is required to compile a list of all deeds which are dated or acknowledged more than six months prior to the date of recording and to forward a copy of the list to the inheritance tax division of the department of revenue. The recorder is empowered to reproduce in miniature any instrument recorded in his office. The recorder may, in lieu of maintaining separate books, prepare and maintain a combined index system which contains the same data required to be kept in the separate index books.

The required separate index books are described in Chapter 558. The recorder must keep index books, the pages of which are so divided as to show in parallel columns: grantor, grantee, time instrument filed, date of instrument, nature of instrument, the book and page where the record thereof may be found, and the description of the real estate conveyed. Separate index books are to be kept for mortgages and satisfactions or releases of mortgages, one for those containing a description of lots, and one for those containing land. Other conveyances are to be kept in separate books also, with further breakdown of conveyances of lots and conveyances of land. An index book is to be kept for powers and conveyances of land. An index book is to be kept for powers of attorney, affidavits, certified copies of petitions in bankruptcy, decrees of adjudication in bankruptcy, and orders approving trustees' bonds in bankruptcy--all arranged alphabetically. The entries in each book are to show the names of the grantors and grantees, arranged in alphabetical order. Deeds, mortgages, and other instruments affecting lots in cities or villages, the plats whereof are recorded, are to be recorded in separate books from those in which other conveyances of real estate are recorded. Instruments which contain a description of land or lots in cities or villages, the plats whereof are recorded, and other land are to be indexed in both land and city lot indexes. Filing and indexing by the recorder is constructive notice to all persons of the rights of the grantees.



Chapter 558 prohibits the recorder from recording deeds or other instruments unconditionally conveying real estate under the proper entries have been made upon the transfer books in the county auditor's office. The county auditor is required to keep books for the transfer of real estate, consisting of a transfer book, an index book, and a plat book, with forms prescribed for each. No conveyances of additions to any city in which streets and alleys and other public grounds are sought to be dedicated to public use are to be entered unless endorsed by the approval of the council of such city.

Chapter 10 provides for a "land office," the books and records of which are to be kept to show and preserve an accurate chain of title from the general government to be purchaser of each subdivision of land; to preserve a permanent record of all correspondence with any of the departments of general government in relation to State land; and to preserve copies of the original lists furnished by the selecting agents of the State, and of all other papers in relation to such lands which are of permanent interest. Separate tract books are to be kept for university lands, saline lands, the half-acre grant, the sixteenth sections, the swamplands, and such other lands as the State owns, so that each description of State lands is kept separate from all others. Documents and records kept in the land office are subject to inspection by parties having an interest in them. The Secretary of State is directed to receive and keep as public records any field notes, maps, records, or other papers relating to the public survey of Iowa. The United States has free access to these records. Lists of federally granted lands are to be kept by the Secretary of State.

Under Section 343.13 of the Code of Iowa, any county officer may make photographic copies for reproducing the original record of any item filed in his office. When the copies are made and indexed, the officer may destroy the original on approval of a judge of the district.

### C. Taxation

Real property tax assessment responsibilities in Iowa fall upon the tax assessors. The assessor is required by Chapter 441 to assess all real property in his city or county, as the case may be. Each inhabitant of the State of Iowa is required to list for the assessor all property owned or managed by the individual subject to taxation of the State. Real estate is to be listed and assessed in 1978 and every two years after that. Real estate must be listed by describing the tracts so that each description does not comprise more than one city lot. However, descriptions may be combined to allow the assessor to value the property as a unit. The assessor has the duty to revalue and reassess any property that was incorrectly listed or valued. The county auditor is directed by Chapter 441 to furnish to each assessor a plat of all the lands in the assessor's district showing on each subdivision or part the name of the owner, number of acres, and boundary lines. The county auditor may establish a permanent real estate index number system with related tax maps for all real estate tax administration purposes. Chapter 441 provides that, wherever in real property tax administration the legal description of tax parcels is required, the permanent number system may be adopted in addition thereto or in lieu thereof. If the system is

established, it is to describe real estate by township, section, quarter section, block series, and parcel. The auditor is to prepare and maintain real estate tax number tax maps, which carry the number and legal description of each parcel and delineate it graphically. The auditor also is directed to prepare and maintain cross indexes of the numbers assigned under the system with the legal description of the real estate to which the number relates. The indexes and tax maps are to be open to public inspection.

#### D. Liens

Chapter 624 provides that judgments in the Iowa appellate or district courts and the U. S. circuit or district courts within Iowa are liens upon the real estate owned by the defendant at the time of rendition and upon any real property the defendant may acquire within ten years from the date of the judgment. In addition, judgments for fines in criminal actions are liens upon the real estate of the defendant, according to Chapter 790. Chapter 606 requires the clerk of the district court to maintain certain records, requires the clerk of the district court to maintain certain records, including a lien book. The clerk is required to record details of the year, month, day, hour, and minute of when the entry of a lien or index of an action affecting real estate was made. Chapter 624 provides that the attachment of the judgment lien relates back to the date of entry of judgment if the judgment was entered in the judgment docket and lien index and the real property lies in the county, the judgment will not attach until an attested copy of the county in which the real property lies. Exception is made for judgments of the appellate courts of Iowa which do not attach to any real estate until an attested copy of the judgment is filed in the office of the clerk of the district court of the county in which the real estate lies. The clerk is directed to make a complete record of causes of action where the title to real estate is involved and expressly settled or determined, and to enter it in the proper book. The lien index is not parcel specific.

Chapter 450 creates a lien for inheritance taxes. Notice of the lien is not required to be recorded. Iowa's lien has priority over all subsequent mortgages, purchases, or judgment creditors. The department of revenue releases the lien by filing a receipt, certificate of nonliability, release, or waiver in the office of the clerk of the court in the county where the property is located, the county where decedent owner died, or county where the estate is pending or was administered. Such a choice of filing locations further complicates the recording of the release which is not parcel specific. The Probate Code provides that the clerk of the probate court is to keep a book known as the Probate Record that is to contain entries of all orders made in relation to each estate, including complete records of the sale or mortgage of real estate.



## E. Aliens

Although the Iowa Constitution provides in Article I, Section 22, "Foreigners who are, or may hereafter become residents of this State, shall enjoy the same rights in respect to the possession, enjoyment and descent of property, as native born citizens," the Iowa legislature has recently enacted laws which impose restriction on landholding by aliens. Chapter 567 commences with strong language: "Nonresident aliens...are prohibited from acquiring title to...real estate in this state, except as hereinafter provided." The spouse, heirs, and devisees of any alien or naturalized citizen who has acquired Iowa real property may hold the property by devise, descent, or distribution for only 20 years if they are nonresident aliens. If they have not become Iowa residents by that time, the land escheats to the State. An exception is made for real property within the corporate limits of a city. Certain corporations have an obligation to sell their real estate under pain of the escheat provisions. Citizens of Iowa may initiate the escheat proceedings, with an award of attorney's fees being possible. Chapter 567 requires nonresident aliens who own or lease agricultural land to report annually to the Secretary of State. The report is to contain the alien's name, address, residence, and citizenship; a declaration of the type of agricultural activity engaged in; the acreage and location of agricultural land owned outside the corporate limits of a city, listed by township and county; the approximate number of acres used for each agricultural crop; and the number of acres owned, operated, and leased by and to the nonresident alien. This chapter of the Code of Iowa was rejuvenated in 1978 when definitions of terms were made, making the Chapter less vague and more operable.

Chapter 172C of the Code of Iowa describes the Corporate or Partnership Farming Act. It was enacted in 1975 and has been amended. In contrast to the general corporate provisions described in Section I A9, this Act provides for detailed disclosure of interest in Iowa agricultural land by foreign and non foreign corporations and partnerships. The Act imposes a moratorium, with exceptions, on the acquisition of agricultural land by corporations until August 15, 1980. Corporations that own or lease agricultural land are required to file with their annual report detailed information as to land leased and owned, including a description of the acreage and location listed by township or legally described urban plat (parcel specific). Statements of purpose are required in the case of a corporation holding agricultural land for immediate or potential use in non farming purposes. Limited partnerships have similar reporting burdens imposed upon them. Failure to timely file a report or the filing of false information is punishable by a civil fine not to exceed one thousand dollars. In addition, the secretary of state has the duty to notify anyone whom the secretary has reason to believe is required to file a report and has not. The notice stipulates that the person may be in violation of the Act and states the penalty which will be assessed if the report is required and not filed. Without providing any remedy to the luckless person, the Act provides, "After thirty days from receipt of the notice, any person required to report under this Chapter who has not filed shall be assessed a civil fine of one hundred dollars for each day in which the report is not filed." This daily penalty is in addition to any other penalty.

## F. Planning, Environment And Land Preservation

Chapter 473A of the Code of Iowa provides for the creation of a joint planning commission of cities and counties as well as school, water, fire, sanitary, and other similar districts. Included in the power of the commission is the power to make comprehensive studies and plans for the development of the area it serves by making survey, land-use studies, and urban renewal plans. Such plans and surveys, although not parcel specific, could be included in the MPLDS. Documents filed with the county auditor pursuant to Chapter 455 and relevant for levees and drainage districts, some of which are parcel specific, also could be included. Such documents include the petition for establishment of a levee and drainage district; engineer's report which includes a plat of ditches and drains and the boundary of the proposed district; and the agreement of owners of land for the combined drainage of their land by the establishment of a drainage district. The owners agreement is parcel specific and indexed to the names of the owners. Chapter 467A provides for soil conservation district which has the power to conduct surveys, investigations, and research relating to soil erosion. The results of the surveys and investigations are to be published and disseminated. Although not parcel specific, the information could be included in the MPLDS.

Iowa recently enacted a Land Preservation Act, Chapter 93A, the purpose of which was to provide for the development of land preservation policy recommendations for the consideration of the General Assembly. The general assembly intends to provide for the development of recommendations which will provide for the orderly use and development of land in Iowa; preserve private property rights; preserve the use of prime agricultural land for agricultural production; and provide for the future housing, commercial, industrial, and recreational needs of the State. The Act creates a temporary land preservation policy commission whose duty it is to develop policy recommendations, considering preservation of agricultural land and a review of the available resources, growth trends, and land use issues of the county. A similar State land preservation policy commission also is created. The State commission is to be dissolved upon final action by the General Assembly of the recommendations presented. The recommendations also could be included in the MPLDS, although not parcel specific.

## III. Obstacles - Home Rule and Privacy

A new section to Article 3 of the Iowa Constitution was approved by the people of Iowa on November 7, 1978. The addition provides home rule for counties and joint county-municipal corporation governments. It provides as follows:

"Counties or joint county-municipal corporation governments are granted home rule power and authority, not inconsistent with the laws of the general assembly, not inconsistent with the laws of the general assembly, to determine their local affairs and government, except that they shall not have power



to levy and tax unless expressly authorized by the general assembly. The general assembly may provide for the creation and dissolution of joint county-municipal corporation governments. The general assembly may provide for the establishment of charters in county or joint county-municipal corporation governments.

If the power or authority of a county conflicts with the power and authority of a municipal corporation, the power and authority exercised by a municipal corporation shall prevail within its jurisdiction.

The proposition or rule of law that a county or joint county-municipal corporation government possesses and can exercise only those powers granted in express words is not a part of the law of this state."

The impact of home rule on an MPLDS is discussed in the Illinois survey. It is rather early to judge the effect of home rule in Iowa.

Iowa created a citizens privacy task force to study State statutes, rules, and proposed legislation relating to privacy and confidentiality; to investigate actual State practice in administering and enforcing State and Federal privacy and confidentiality statutes and rules; and to evaluate the need for more coordination between the State and Federal governments in implementing State and Federal privacy and confidentiality statutes and rules. The Act repeals itself on January 1, 1980, at which time the commission is to submit a final report of its findings, projections, and recommendations to the general assembly. Presumably, some privacy legislation will be enacted after that; legislation which could affect the MPLDS.

## NORTH CAROLINA

### I. Observations

This section surveys North Carolina statutes which presently require the generation of a wide array of public and private documents. It also examines how North Carolina's recent Land Policy Act and Land Records Management Program are nascent steps toward the creation of an MPLDS system. North Carolina was chosen to be included in the survey because of its statewide program for improvement of land recording practices.

### II. Survey Of North Carolina Real Property Data Systems

#### A. Traditional County Registrations

North Carolina law states that no conveyance of land, contract to convey, option to convey, lease of land for more than three years, deed of trust, easement, mortgage, or conditional sales contract shall be valid to pass any property interest as against lien creditors or purchasers for valuable consideration but from the time of registration in the county where the land lies (G.S. 47-18, 47-20, 47-27). This registration

requirement is self-policing in the sense that while registration is not required to effect a conveyance, it is required to protect the priority of a property holder's interest. In addition to instruments of conveyance and lease, wide variety of other documents must be registered in North Carolina. These include:

1. Plats.--G.S. 47-30 and 47-30.1 govern the recording of land maps to the register of deeds. G.S. 19-4 requires the registration of final right-of-way plans for all State Department of Transportation projects with the register of deeds in the county where the property is located. Maps of property annexed to municipalities, as well as municipal annexation agreements, also must be recorded (G.S. 160-39, 160-29). Registers of deeds are not to record plats which do not show approval by appropriate municipal or county authorities, which explicitly include planning agencies. See G.S. 160A-373, G.S. 153A-332.

2. Condemnation.--The State Department of Transportation is required to file a memorandum of condemnation actions in the county where the affected parcel is located. G.S. 36-116 requires the registration of final judgments in condemnation actions as well. With respect to municipal condemnations, G.S. 160A-257 requires the registration of final condemnation resolution and any judgments modifying such resolutions as to the nature and extent of the property acquired.

North Carolina law also permits the registration of appraisals relating to damage caused by the construction of waterways, ditches, drains or dams. See G.S. 73-22, G.S. 74-29.

3. Condominium declarations.--Chapter 47A, entitled "Unit Ownership Act", requires that a condominium declaration be filed which contains the description of the land and improvements, individual units, common areas, statement of purpose, and building plans. Subsequent liens for sums assessed by the condominium association for common expenses chargeable to any unit against a particular unit may be filed in the office of the county superior court. Upon filing, the lien is prior to all others except prior recorded mortgages and encumbrances and charges for real estate taxes due and unpaid on the unit. See G.S. 47A-22.

4. Filings by miscellaneous creditors.--G.S. 17-20.5 defines an "after-acquired property clause" as any provision or provisions in an instrument which create a security interest in real property acquired by the grantor of the instrument subsequent to its execution. Section 17-20.5(c) states that such clauses "shall not be effective to pass title to after acquired property as against lien creditors or purchasers for a valuable consideration from the grantor of the instrument unless and until such instrument has been re-registered at or subsequent to the time such after acquired property is acquired by such grantor." Registration of after-acquired property clauses may be extended pursuant to Section 17-20.5(c)(1).



North Carolina adheres to the Uniform Commercial Code's fixture filing procedures at G.S. 259401.

G.S. 44A-7, et seq, creates a statutory mechanic's, laborer's and materialman's lien upon real property. While the claim of lien must contain a reasonable identification of the property, it is filed not with the county register of deeds but with the clerk of the superior court under the name of the record owner of the real property. An MPLDS most likely would attempt to coordinate the court's mechanic's lien records with the balance of county real estate records.

Pursuant to G.S. 105-20, unpaid estate taxes "shall remain a charge upon...real estate until paid."

5. Real estate conveyance tax.--G.S. 105228.28 imposes an "excise stamp tax on conveyances" in the amount of 50 per \$500 of consideration, or fractional part thereof. It is the duty of the party presenting the instrument for registration to see that the correct amount of stamps is affixed to the face thereof prior to recording in the register of deeds (G.S. 105228.32). As such, North Carolina law is similar to Illinois law in providing a parcel-specific, stamp-tax method of determining the consideration paid for real estate in the open market.

6. Corporate and partnership reporting.--G.47- 18.1 states that when title to real property is transferred by operation of law upon corporate transfer or consolidation, such transfer is effective against lien creditors or purchasers for a valuable consideration from the corporation formerly owning the property only from the time a certificate of merger or consolidation is registered in each county where a portion of the land lies. The transfer of title is then recorded in the grantor/grantee index.

According to North Carolina law, two or more persons desiring to form a limited partnership must file a certificate with the register of deeds of the county where the principal place of business is located. Among other requirements, this certificate must include the name and residence of each partner, past and anticipated future contributions by the partners, the share of each partner, and the priority of partnership (if formed) if there has been substantial compliance in good faith with the certificate requirements.

7. Banks.--G.S. 53.5 requires that a bank's Certificate of Incorporation be registered in the county where the principal office of the corporation in North Carolina is located. The Certificate contains the name of the corporation, the location of its principal offices, the amount of shares and capital stock, and the names and addresses of subscribers for stock.

8. Farm names.--G.S. 8033 provides that any owner of a farm in the State of North Carolina may have the name of his farm, together with a description of his lands to which said name applies, recorded in a register kept for that purpose in the office of register of deeds of the county in which the farm is located. Subsequently, no other name sufficiently similar as to "produce confusion" may be recorded in the same county unless the name has been generally known prior to March 5, 1915 (G.S. 80-34, 80-35).

9. Marriage settlements.--G.S. 47-25 states that all marriage settlements and other marriage contracts, whereby any money or other estate is secured to the wife or husband, shall be proved or acknowledged and registered in the same manner as deeds for lands, and shall be valid against creditors and purchasers for value only from the time of registration.

10. Deeds of Gift.--G.S. 47-26 states that all deeds of gift of any estate of any nature must be registered within two years after the making thereof or otherwise be void, and shall be good against creditors and purchasers for value only from the time of registration.

11. Powers of attorney.--G.S. 47-28 states that every power of attorney may be registered either in the county in which the attorney resides or the business is to be transacted, or, where the power relates to the conveyance of property, in the county where the property or estate is located.

12. Bankruptcy.--G.S. 47-29 requires that either a copy of the petition commencing Federal bankruptcy proceedings or a decree of adjudication in such proceeding or the order approving the bond of the trustee in such proceeding shall be recorded in the office of any register of deeds in North Carolina.

13. Partition.--The final report of the three commissioners appointed to partition real estate pursuant to Chapter 46, together with the decree of confirmation, must be enrolled and certified to the register of deeds, and registered in the office of the county where such real estate is situated. See G.S. 46-20.

#### B. County Registers Of Deeds

In each North Carolina county there is elected a register of deeds who registers all instruments duly presented to him in the precise order they were presented for registration (G.S. 161-1, 161-14). In addition to documents traditionally related to real estate, the register of deeds is authorized to record and file documents relating to persons, partnerships and corporations for business and other purposes, including but not limited to certificates of partnership, assumed business names, and incorporations. These business documents are to be kept in a consolidated book or record which includes records used for the filing of deeds, deeds of trust, leases and similar document (G.S. 161-14.01). Chapter 161 further directs boards of county commissioners to "cause to be made and consolidated into one book a general index of all the deeds and other documents in the register's office, and the register shall afterwards keep up such index without any additional compensation." G.S. 161-21. As a result of these requirements, registers of deeds in North Carolina keep a centralized collection of data on a wide array of activities which go beyond normal real estate documentation. As such, North Carolina registers of deeds are closer to establishing a versatile, multi-purpose system than Illinois, for example.



The manner in which North Carolina registers are to record documents is set forth in G.S. 161-122:

"161-122. Index and crossindex of registered instrument. -- The register of deeds shall provide and keep in his office full and complete alphabetical indexes of the names of the parties to all liens, grants, deeds, mortgages, bonds and other instruments of writing required or authorized to be registered; such indexes to be kept in well-bound books, and shall state in full the names of all parties, whether grantors, grantees, vendors, vendees, obligors or obligees, and shall be indexed and cross-indexed, within 24 hours after registering any instrument, so as to show the name of each party under the appropriate letter of the alphabet; and wherever the "Family" index system shall be in use, to also show the name of each party under the appropriate family name and the initials of said party under the appropriate alphabetical arrangement of said index; and all instruments shall be indexed according to the particular system in use in the respective office in which the instrument is filed for record....".

Section 161-21 leaves the creation of a "Family" index system with the board of county commissioners. Wherever the "Family" index system is in use, no instruments are lawfully recorded until indexed and cross-indexed under the appropriate family name and the appropriate alphabetical subdivision of said family name.

There recently has been a concerted effort to improve land recording practices in North Carolina. G.S. 102-15 establishes a statewide program for improvement of county land records under the Secretary of the Department of Administration. The statute states that the first priority is to complete countywide base maps. Counties with base map systems prepared to acceptable standards are encouraged to undertake subsequent "logical improvements" in their respective land records system, including those kept by the county register, county tax supervisor, and other county offices. The State Department of Administration provides financial assistance to counties for this purpose.

The goal of this state-assisted program is further elaborated upon in G.S. 102-17:

"All projects shall achieve a substantial measure of conformity with the objectives set forth in the project outlines such that a greater degree of statewide standardization of land records will result."

The project outlines set out in G.S. 102-17 include:

1. The preparation of accurate planimetric or orthophoto maps with countywide coverage at one or more scale ratios suitable as a base for development and maintenance of current cadastral maps.

2. The preparation of accurate maps of all property boundaries together with other supporting information, based upon up-to-date planimetric or orthophoto maps. These maps are to include references to subdivision plat numbers, property codes, "and other information considered useful to the appraisal process or to the public generally."

3. The adoption of parcel identifiers which will serve:

"...to provide unique identification of each parcel of land, a permanent historical record of change and the chain of title, and any necessary cross-reference to other pre-existing parcel identifiers. The proposed system of parcel identifiers shall conform to such minimum specifications and standards as may be promulgated by the Secretary for the purpose of achieving consistency and compatibility among all counties throughout the State. Said minimum specifications and standards for parcel identifier systems shall be adopted and administered by the Secretary only after consultation with the recommendation from an advisory committee on land records with a membership representative of professional organizations concerned with public land records and map making.

It should be noted that parcel identifier number index system must be designed in a manner which provides access to information by means both the parcel identifier and the name of any party to an instrument of record (G.S. 161-22.2(d)(5)). As such, the traditional "grantee-grantor" index is not replaced but merely supplemented by this legislation.

4. The preparation and implementation of a system of automated record-keeping which will expedite "the maintenance of accurate up-to-date files, improve the appraisal process, and facilitate analytical operations needed to respond to requirements for current information."

G.S. 161-22.2 authorizes the adoption of parcel number index systems as the "official real estate property index of the county," provided that the system obtains the Secretary of Administration's approval.

G.S. 161-30, entitled "Modernization of Land Records," states that in any county where parcel identifiers have been assigned to any of the real property situated within the county, the county commissioners may require that the register of deeds shall not accept for registration any map, deed, deed in trust, or other instrument affecting real property unless the parcel identifier for all of the property described is affixed and verified by the county as part of the legal description. However, G.S. 161-30(c) states that failure to comply with the parcel identifier requirement shall not affect the validity of any instrument that is duly recorded. As a result,



while the State is encouraging the adoption of a parcel identifier system it is not yet deemed to be the sole, sufficient mechanism through which to describe and convey interests in real property.

In short, North Carolina appears to be providing financial assistance to its counties in order to gradually construct a cadastral-based MPLDS using a parcel identifier system. The effort is supplemented by the "Lands Records Management Program" created pursuant to G.S. 143-345.6. This program is maintained by the Secretary of Administration for the purposes of advising registers of deeds, local tax officials, and local planning officials about sound management practices and of establishing greater uniformity in local land records systems. As part of this program, the Secretary of Administration recommends standards for the reproduction of records by photograph, microphotography, and other means. These standards, however, are not binding "upon the offices of local governments to which they apply" (G.S. 143-345.6). Upon request of local boards, the Secretary will conduct management studies of register of deeds offices, using assistance from the Office of State Personnel. Together with the Secretary of Cultural Resources, the Secretary of Administration provides on-going technical assistance in a number of areas, including the uniform indexing of records and centralized recording system (G.S. 143-345.6(e)). Together with the Departments of Revenue, Natural Resources, and Community Development, the Secretary is to conduct a program for the preparation of county base maps and county property-line maps.

#### C. County Tax Supervisors

In North Carolina, the county tax supervisor has the general charge of listing and appraising all of the property in the county (G.S. 105-296). Taxable real property is to be listed in the name of the owner. It is the owner's duty to list his property unless the board of county commissioners has adopted a permanent listing system. Under the permanent listing system provided for in G.S. 105-303(b), the tax supervisor is solely responsible for listing property in the name of the owner; however, property owners still are responsible for informing the tax supervisor of improvements made upon the property or the accrual of "separate rights," such as mineral rights, therein. Persons who are obligated to list their real property must file an abstract each year with the tax supervisor. Individuals trading under firm names must reveal their real name and address; unincorporated associations must show the names and addresses of principal officers; partnerships must reveal the names and addresses of their full partners.

G.S. 105-309(c) requires that the abstract contain the following:

"c. The Tract name (if any), the names of at least two adjoining landowners, a reference to the tract's designation on any map maintained in the office of the tax supervisor or on file in the office of the register of deeds, or some other description sufficient to identify, and locate the property by parol testimony.

- d. If applicable, the number of acres of:
  - 1. Cleared land;
  - 2. Woods and timberland;
  - 3. Land containing mineral or quarry deposits;
  - 4. Land susceptible of development for waterpower;
  - 5. Wasteland.
- e. The portion of the tract or parcel located within the boundaries of any municipality."

Abstracts must be signed and affirmed by the property owner; to willfully supply false information is a misdemeanor bearing a penalty of either a \$500.00 maximum fine or imprisonment for a term not to exceed six months (G.S. 105-310). Failure to list real property also is a misdemeanor bearing these same penalties (G.S. 105-308). Failure to list property is deemed prima facie evidence that the failure was willful. Newly discovered improvements or property rights are subject to being back-taxed for a period not to exceed five years, including stiff penalties. See G.S. 105-312(g), (h).

In summary, although North Carolina law requires real property owners to make extensive disclosures concerning their holdings or face severe penalties, the abstract-filing system in North Carolina counties does not appear to be required by law to be based on the parcel-identifier system introduced in G.S. 102-15, discussed above. Parcel identifiers are, of course, a basic element in the MPLDS system. North Carolina's apparent failure to mandate the use of parcel identifiers for real estate taxation is particularly surprising, given the State's modernization program.

#### D. Environmental and Land Use Data

North Carolina law provides for the generation of a wide array of environmental and land use data which conceivably could be included in an MPLDS. A number of statutes already call for the registration of certain information, including subjects such as:

- 1. Sanitary landfills.--G.S. 130-166.21 provides that whenever the Department of Human Resources approves a sanitary landfill as a solid waste disposal facility, the successful applicant for approval shall file a certified copy of the Department's order of approval in the register of deeds office of the county or counties in which the landfill is located. The order is then indexed in the grantor index in the name of the owner or owners of the landfill site.
- 2. Shoreline protection.--Where boards of county commissioners have established "shore protection lines" pursuant to G.S. 104B-4, maps or



written legal descriptions of these lines must be filed permanently with both the clerk of the superior court and the register of deeds in the county where the land lies. Areas within these lines are protected from further development or disturbance without the issuance of permits. The statute attempts to preserve the barrier dunes along North Carolina's seacoast.

3. Oil leases.--Pursuant to G.S. 113-114, every person, firm, or corporation holding petroleum leases annually must file in the office of the local register of deeds a list showing the leases which have been renewed for the ensuing year.

4. Cemeteries.--G.S. 65-1 requires boards of county commissioners to record with the county register of deeds "a list of all public cemeteries in the counties outside the units of incorporated towns and cities, and not established and maintained for the use of an incorporated town or city, together with the names and addresses of the persons in possession and control of same." The boards also are required to add to such list the public cemeteries in rural districts of the county which have been abandoned. The stated purpose of this legislation is to permit the Secretary of State to develop literature which will suggest "methods of taking care of such places".

#### E. Miscellaneous Unrecorded Information

North Carolina law also calls for the generation of other plans, permits and data which do not have to be registered:

1. Natural resource surveys.--G.S. 113-8 directs the State Department of Natural and Economic Resources to undertake the examination, survey, and mapping of the geology, mineralogy, and topography of the State, including an inventory of water resources.

2. State environmental impact statements.--G.S. 113A-4(2) requires state agencies to file detailed environmental statements whenever they undertake reports on proposals for legislation and actions involving expenditure of public moneys "for projects and programs significantly affecting the quality of the environment of this State." The governing bodies of cities, towns, and counties are authorized to require similar statements of any special-purpose unit of government or private developer of "a major development project." These environmental statements could conceivably be included in an MPLDS.

3. Sedimentation, soil and water conservation, watershed improvement and drainage regulations.--G.S. 113-54 (c)(2) provides for the identification of areas deemed to have critical erosion and sedimentation problems. The areas so identified, together with the erosion control programs devised pursuant to G.S. 113A-60, could be included in an MPLDS.

Soil and water conservation districts are authorized to arrive at similar regulations governing the use of lands pursuant to G.S. 139-9.

Both watershed improvement districts and soil conservation districts engage in the classification of lands for the purpose of establishing benefits derived from the construction of levees, ditches, drains, and watershed improvements. These classifications later form the basis of assessments which pay for the cost of the improvement. An MPLDS would presumably record the extent of such charges upon real estate.

4. Coastal area management.--G.S. 113A-109 requires counties to develop land use plans to implement statutory coastal area management guidelines, or have the State prepare one in their stead. These plans include maps identifying particular types of water use, and must give special attention to the areas of environmental concern designated by the State Coastal Resources Commission. These areas include various coastal wetlands, estuarine waters, endangered renewable resource areas (such as aquifers or prime forestry land), and fragile or historic areas. While resolutions designating areas of "environmental concern" must be filed with the Secretary of State, there is no requirement that such resolutions be filed with the local register of deeds (G.S. 113A-115). Such designations would be useful to an MPLDS. Before any development may occur in areas of environmental concern, a permit must be obtained from either the appropriate local government or the Commission, depending upon the scale of the proposal. An MPLDS presumably would record these permits.

North Carolina's Land Policy Act of 1974, G.S. 113A-150, et seq., raises the possibility that these disparate sources of environmental and land use information shall be unified. The General Assembly's findings state that:

"...a lack of systematic collection, classification, and utilization of information regarding the land resource have led to inconsistencies in policy and inadequacies in planning for the present and future uses of the land resource. (G.S. 113A-151(a)(2))."

A stated goal of the legislation is to

"Promote the development of systematic methods for the exchange of land use, environmental, economic and social information among levels of government among agencies at all levels of government. (G.S. 113A-156(c)(6))."

Among the duties of the North Carolina Land Policy Council are statutory commands:

"(2) To define and cause to be prepared and periodically revised, a system of information and data concerning the land resources of the entire State, including, but not limited to, esthetic, economic, ecological, demographic, geologic, and physical conditions, both current and projected, as well as a continuing inventory of governmental and private needs and priorities for the use of land resources. All State agencies and units of



local government including the register of deeds of each county shall make all pertinent data in their custody available to the Land Policy Council.

\* \* \*

(4) To prepare, and revise on a continuing basis, an inventory of public and private institutional and financial resources available for land-use planning and management within the State and of State and local programs, projects, and activities which have a regional impact of more than local concern. (G.S. 113A-153(c))."

Section 156 of the Land Policy Act calls for the creation of a land classification system "which shall include comprehensive guidelines and policies and a method for the classification of all lands in the State." The Land Policy Council is to adopt no fewer than four nor more than eight classifications "which recognize land as a basic social and natural resource," based upon the following aspects and characteristics of the lands of the state (G.S. 113A-156(c)):

- "i. Topographic features such as land elevations and gradients.
- ii. Surface and underground waters, natural or artificial.
- iii. Geological, chemical, mineral and physical characteristics of the land.
- iv. The existing or potential utility of lands and sites having intrinsic historic, ecological, recreational, scenic or esthetic values or virtues.
- v. The availability or potential availability of public service, including key facilities, health, education, and other community facilities and social services.
- vi. Areas of environmental concern, existing or potential key facilities, projects of regional impact, new communities, and large-scale development. (G.S. 113A-156(c))."

Nowhere does the Land Policy Act require the adoption of the fledgling parcel-identifier system authorized by the State's land records modernization program found at G.S. 102-15. While Section 156(c) calls for the inclusion of data concerning topographic features, waters, geological characteristics, and areas of environmental concern, it does not exhaust the full range of land and environmental data already generated by North Carolina law. Presumably, more data could be included once the land classification system is wed to an MPLDS using the parcel-identifier system.

### III. Summary and Conclusion

The North Carolina State Constitution does not contain the type of home-rule provisions contained in the Illinois Constitution, discussed supra. Article

VII, Section 1 of the North Carolina Constitution merely states that: "The General Assembly shall provide for the organization and government and the fixing of boundaries of cities, towns, and other governmental subdivisions." As a result, there is little concern that the implementation of an MPLDS would require constitutional amendments concerning the responsibilities of State and local governments and officers.

North Carolina already has made substantial legislative efforts which could be capitalized upon should an MPLDS be authorized in the future. The land records modernization program calls for the introduction of cadastral maps and the parcel-identifier system. The Land Policy Act creates a land classification system which embraces a wide array of topographic, geologic, and environmental data. An MPLDS easily could build upon these statutory efforts by including the wide array of data historically kept by county registers of deeds, and by indexing other land use and environmental information according to the parcel-identifier system.

## OREGON

### I. Observations

This section surveys Oregon statutes which require the collection of land data at the State and county level. Oregon has established a system of plane coordinates. Water resources and mining interests are dealt with extensively in the Oregon statutes. Each county in Oregon has an official county surveyor.

### II. Survey of Oregon Real Property Data Systems

#### A. Traditional Real Estate Documentation

Section 93 provides that conveyances of lands, or of any estate or interest therein, may be made by deed, signed, and acknowledged or proved, and recorded. No interest in real property other than a lease of less than one year, or a trust or a power concerning such property, can be created or transferred unless in writing. All instruments conveying or contracting to convey fee title are to state the actual consideration paid for the transfer on the face of the instrument, stated in terms of dollars. The statement of consideration is to be made by the grantor or grantee; failure to make the statement does not otherwise invalidate the conveyance. However, no instrument conveying or contracting to convey fee title to real estate, nor any memoranda of such instruments, are to be accepted for recording by any county clerk or recording officer in Oregon unless the required statement of consideration is included on the face of the instrument. The address to which tax statements should be sent is required to be displayed on the face of an instrument of conveyance; however, failure to include it does not



invalidate the conveyance or the recording of it.

All instruments contracting to convey fee title to any real property at a time greater than 12 months from the date of execution are to be acknowledged and recorded within 15 days after the date of execution. Unrecorded conveyances are void as against subsequent purchasers for value who record their instrument first. Recordation constitutes notice to third parties. In addition to recording instruments creating estates in real property, interests in real property created by a land sale contract, licenses, easements, profits a prendre, leasehold interests, oil, gas or other mineral interests, and memorandums of such instruments or contracts, additional documents are recorded in Oregon. Additional documents include:

1. Plats.--A survey and plat of subdivision must be made by a registered engineer or a licensed land surveyor. Certain requirements must be met before plats can be recorded. No plat is to be recorded unless all ad valorem taxes and all special assessments which have or may become a lien upon the subdivision have been paid. Before a plat can be recorded, it must be approved by the city engineer, city surveyor, or county surveyor, and by the county assessor and the governing body of the county in which the property is located. When the plat is made, approved, and offered for record in the records of the county where the land is located, it is to be filed by the county recording officer.
2. Notice of lis pendens.--Filing a notice of the pendency of an action in which the title to, interest in, or lien upon real property is involved with the county clerk or other recorder of deeds constitutes notice to purchasers and incumbrances of the party filing the notice. The notice is to be recorded in the same book and the same manner in which mortgages are recorded.
3. Unit ownership.--Oregon recognizes the condominium form of ownership and refers to it as unit ownership. Section 91 provides that property is submitted to unit ownership by recording a declaration in the office of the recording officer of the county in which the property is located. The declaration must contain a description of the land and be acknowledged by the owner of the property. Before the declaration can be recorded, however, it must be approved by the county assessor, the tax collector of the county in which the property is located, and the Real Estate Commission. If the declaration is then approved, it is to be recorded by the recording officer; the person offering the declaration is directed to file a copy of it, certified by the recording officer to be a true copy thereof, with the county assessor. Two other items are to be filed with the declaration: the floor plans of the building and a plat of the land.
4. Filings by miscellaneous creditors.--Section 91 provides that whenever an association of unit owners furnishes to a unit services, labor, or material lawfully chargeable as common expenses, the association will have a lien upon the individual unit when a claim is recorded in the county in which the unit is located. Subsequent nonpayment increases the size of the lien without further filings.

A person claiming a construction lien is required to file a claim for lien with the recording officer of the county in which the improvement is located.

The claim must contain, among other things, a description of the property to be charged with the lien, sufficient for identification. The recording officer is directed to record the claims in a book kept for that purpose, entitled the "Construction Lien Book," indexed in the same manner as the record of deeds and other conveyances.

A person who performs labor or furnishes materials for the development, working, or operation of a mine has a lien upon the mine if he files a written notice of claim of lien with the recording officer of the county where the land to be charged with the lien is located. The recorder is directed to record the notices in a book kept for that purpose, indexed in the same manner as the record of deeds and mortgages.

5. Disclosure required of corporations, partnerships and cooperatives.

-- Generally, corporations, cooperatives (both of which are required to file annual reports) and partnerships are not required to report any real estate information and are authorized to own, acquire, sell, convey, and otherwise deal in real property. However, Chapter 49 of Oregon Laws 1977, provides that corporations and cooperatives that conduct any farming activity or own or lease farm land are required to file with the Corporation Commissioner as a part of the annual statement an additional statement that sets forth:

"a. For each corporation and cooperative that conducts farming:

(i) The name of each county in Oregon in which it conducts farming and the primary farm products raised or produced in each county.

(ii) The name of each state, other than Oregon, in which it conducts farming.

(iii) The name of each country, other than the United States, in which it conducts farming.

b. For each corporation and cooperative that owns or leases any parcel of land containing more than 40 acres of farmland:

(i) The name of each county in Oregon in which it owns or leases such farmland and the primary farm products raised or produced on such farmland in each county.

(ii) The name of each State, other than Oregon, in which it owns or leases such farmland.

(iii) The name of each country, other than the United States, in which it owns or leases such farmland.

c. The name and address of each director of the corporation and cooperative.

d. The name and business address of each individual or business entity that owns or controls 10 percent or more of the voting shares of the corporation and cooperative."



The Corporation Commissioner is required to maintain a record of such statements separate and apart from the traditional annual statements of corporations. These reporting provisions took effect on January 1, 1978 and repeal themselves on July 1, 1981.

6. Certificates of foreclosure.--Whenever a decree foreclosing a mortgage on real estate is returned in the circuit court of any county, the clerk of the court, in counties where there is a recorder, is required to make out a certificate stating that such mortgage has been foreclosed, deliver the certificate to the recorder, who makes a notation on the record of the mortgage. In counties where the county clerk acts as recorder of conveyances, he is to make the notation.
7. Decrees of other courts.--Certified copies of any judgment, decree, or order of confirmation affecting Oregon land made in any suit may be recorded in the records of deeds in any county in which the land affected is wholly or partly situated by any party interested in the land or suit. Recording the transcript constitutes notice to all persons of the suit and judgment, decree, or order as if the proceedings had taken place in the county in which the transcript is recorded.
8. Telegraphic copies of acknowledged instruments.--A power of attorney or other instrument in writing proved or acknowledged and certified may, together with the certificate or proof or acknowledgement, be sent by telegraph. The telegraphic copy may be admitted to record and be recorded in the same manner and with like effect as the original.
9. U.S. district court orders.--Copies of documents, orders and decrees in proceedings in the U.S. District Court for the District of Oregon, which have been certified by the clerk of the court and which affect title to Oregon real property, are entitled to be recorded in the deed records of any county in which the property is located.
10. National Bankruptcy Act.--Copies of petitions, orders, and decrees regarding proceedings under the National Bankruptcy Act which have been certified by the Clerk of the U.S. District Court for the District of Oregon are entitled to be recorded in the deed records of any county where the bankrupt owns or has an interest in real property.
11. Master forms.--Instruments containing forms of covenants, conditions, obligations, powers, and other clauses of a mortgage or trust deed may be recorded in any county. The instrument is to be entitled "Master Form" and recorded in the name of the entity or person causing it to be recorded. The provisions of such master form may then be incorporated by reference in any mortgage or trust deed of Oregon real property.
12. Mining claims.--Section 517 provides that any person, a citizen of the United States, or one who has declared his intention to become such, who discovers a vein or lode of mineral-bearing rock in place upon the unappropriated public domain of the United States within Oregon may locate a claim upon the vein or lode by posting a notice of the discovery and location on the vein or lode and filing a copy of this "location notice" with the clerk of the county where the claim is situated. The notice is to contain the general course or strike of the vein or lode as nearly

as may be, with reference to some natural object or permanent monument in the vicinity. Claims upon placer deposits of minerals are similarly filed. However, performance of labor or making improvements on a mining claim are required by law to be made annually and may be evidenced by the recording of an affidavit of annual labor. The failure to file the affidavit within the prescribed time is prima facie evidence that the labor has not been done. Contracts of mining copartnerships (grubsteaks) must be in writing and filed for record with the clerk of the county wherein the locations thereunder are made. The contracts must contain the names of the parties and the duration; otherwise they are void.

13. Oregon coordinate system.--The Oregon statute provides rules of construction for construing the descriptive part of a conveyance of real property when ambiguity is present. Included in the rules of construction is the Oregon Coordinate System. The System is based on the system of plane coordinates established by the United States Coast and Geodetic Survey.

The statute provides that no coordinates which purport to define the position of a point on a land boundary is to be presented to be recorded in any public land records or deed records unless that point is within one-half mile of a triangulation or traverse station, which stations are to be marked on the ground according to the statute. Descriptions by coordinates which accompany a description by reference to subdivision, line, or corner of the U.S. public land surveys are deemed supplemental when both descriptions appear in any document; in the event of conflict, the description by reference to the subdivision, line or corner of the U. S. survey prevails. Purchasers and mortgagees are not required to rely on a description, any part of which depends exclusively upon the Oregon Coordinate System.

#### B. County Clerk

In Oregon, the county clerk has recording duties and must record or cause to be recorded, in a legible and permanent manner, in suitable books to be provided by the county and kept in his office, all:

- a. Deeds and mortgages of real property, powers of attorney and contracts affecting the title to real property, authorized by law to be recorded, assignments thereof and of any interest therein when properly acknowledged or proved;
- b. Certificates of sale of real property under execution or order of court, or assignments thereof or of any interest therein when properly acknowledged or proved;
- c. Original or certified copies of death certificates of any person appearing in the county records as owning or having a claim or interest in land in the county; and
- d. Affidavits concerning any person owning or appearing to have an interest in any land in the county, or concerning his interest therein.



The clerk is to keep a general index, direct and indirect, with entries to be made alphabetically by grantor (direct) and grantee (indirect). However, in lieu of a general index, the clerk may use a data processing device or computer to provide an index in machine language for indexing entries. The tax account number may be added to this index. Yearly printouts are to be made: one alphabetical by grantor, one alphabetical by grantee--both of which constitute the general index. Printout by tax account number is not yet provided for in the statute.

#### C. Property Taxation

The Oregon Department of Revenue is authorized to institute programs for the appraisal of property in all counties and to make appraisals for the use of county assessors and boards of equalization in assessing property and reviewing assessment rolls. The State agency may install, and assist in the preparation and maintenance of maps, plats, or standardized record systems, as prescribed by the Department, in the offices of assessors and tax collectors. Real property subject to taxation includes all buildings, structures and improvements; however, property equipped with a solar energy heating or cooling system is exempt from ad valorem taxation.

The assessor is directed to prepare the assessment roll of real property in a specific form. Real property is to be listed in sequence by account number or by code area and account numbers. Owners of real property are required to furnish the assessor with a description of the property upon his request. The description must be such that the area can be computed accurately and the location of boundary lines can be made certain. The assessor of each location of boundary lines can be made certain. The assessor of each county is required to maintain a set of maps upon which are outlined the boundaries of each land parcel subject to separate assessment within the county, with the parcel's tax lot or account number shown on the parcel. The assessor is required to maintain an index of the names of every taxpayer against whom any tax is charged in the county, in alphabetical order. This index is to be indexed to the assessment rolls and the place therein where the assessment of each taxpayer is found. The maps and indices are public records.

#### D. County Surveyors

Section 209 provides for an official surveyor for each Oregon county. The surveyor's duties include keeping a fair and correct record of all surveys made by himself, his deputies, and the county roadmaster, in a book to be kept for that purpose. Each record is to consist of a narrative of the survey, and a plain and correct plat of the survey. The section provides detail as to how the surveys are to be established. In addition, any registered engineer or land surveyor who makes a survey wherein he establishes or re-establishes a corner or corners is required to file complete field notes and a map of the survey with the county surveyor. The county surveyor is required to file and index the notes and map, which then become a public record in the office of the county surveyor.

#### E. Water Resources

Regarding appropriation of water, Section 537 provides that application for a permit to appropriate water is to be filed with the Director of Water Resources Administration. Each application is to set forth the name and post office address of the applicant, the source of water supply, the nature and amount of the proposed use, the location and description of the proposed ditch, canal or other work, the time within which it is proposed to begin construction, the time required for completion of the construction, and the time for the complete application of the water to the proposed use. If the application is for agricultural purposes, it shall give the legal subdivisions of the land and the acreage to be irrigated, as near as may be. All applications are to be accompanied by maps and drawings and any other data concerning the proposed project and the applicant's ability and intention to construct such project.

The Director has the duty to act upon the applications. All applications are to be recorded in a suitable book kept for that purpose. The records of the Department of Water Resources Administration are public records and open to the public for inspection. The records are to show in full all maps, profiles, and engineering data relating to the use of water.

#### F. Public and Private Records

Section 192 provides that every person has a right to inspect any public record of a public body in Oregon, except as otherwise provided by the Oregon Revised Statutes. The public records which are exempt from disclosure (unless the public interest requires disclosure in the particular instance) include information relating to the appraisal of real estate prior to its acquisition.

Public records which are exempt from disclosure include:

Information submitted to a public body in confidence and not otherwise required by law to be submitted, where such information should reasonably be considered confidential, the public body has obliged itself in good faith not to disclose the information, and when the public interest would suffer by the disclosure.

The scope of that exemption depends upon the interpretation. This provision of the Oregon statutes would have to be considered in the implementation of an MPLDS.

#### G. Home Rule

Section 203 of the Oregon Revised Statutes provides for home rule for counties by providing that the governing body or the voters of the county may by ordinance exercise authority within the county over matters of county concern to the fullest extent allowed by the Constitution and laws of the United States and Oregon. Specific provisions are made for a county that desires to adopt, amend, revise, or repeal a county charter.



## H. Aliens

Oregon imposes no restrictions but does not specifically protect the right of aliens to own real estate. The only provision regarding aliens and real estate is found in Section 273.255 of Oregon Revised Statutes, regarding State lands. An individual who is a citizen of the United States or who has declared his intention to become a citizen may apply to purchase State lands.

## VERMONT

### I. Observations

This section surveys Vermont statutes which require the collection of land data at the State and county levels. Vermont has a dual system of recording; town and county clerks each perform recording duties. Vermont established a system of plane coordinates in 1945.

#### A. Traditional Real Estate Documentation

The public disclosure of conveyances of land is mandated by the Constitution of the State of Vermont, which was established in 1793 and has been amended only ten times since then. It provides in Chapter II, Section 62, that "all deeds and conveyances of lands shall be recorded in the Town Clerk's office in their respective towns; and, for want thereof, in the County Clerk's office in the same county."

The following topical summary describes how the legislature has amplified the Constitution's admonition.

Chapter 5 of Title 27 of Vermont Statutes Annotated provides that deeds and other conveyances of lands shall be signed by the grantor, signed by two witnesses, acknowledged by the grantor before a town clerk, notary public master, county clerk, judge, or register of probate and recorded. A deed, mortgage, or other conveyance of land and a lease in excess of one year are not good against third parties unless acknowledged and recorded as provided in Chapter 5.

Mortgages, leases, writs of attachment, notices of liens, releases, and other instruments which affect the title of real estate may be recorded.

In addition, the following documents are recorded in Vermont:

1. Land plats.--Chapter 17 of Title 27 provides for the recording of land plats. Each town clerk is directed to accept land plats for filing, and to maintain files of land plats. Much detail is provided in the chapter regarding the size of the paper, margins, and type of ink to be used in the composition of the plats; however, there is no requirement regarding who may prepare them. However, if the plat is compiled by a licensed surveyor, the plat shall contain his certification, signature, and seal.

2. Plans.--The town clerk has the discretion of recording building plans in the land record books upon request. The plans must conform to the requirements regarding plats as to quality of paper, size, ink, etc.
3. Disclosure of corporate ownership not required.--Corporations are required to file annual reports, but details of real estate ownership are not requested. Corporations have the general power to purchase, lease, acquire, own, improve, use and otherwise deal with real property.
4. Creditors' claims.--With regards to mechanic's liens, Chapter 51 of Title 9 provides that when a contract is made, whether in writing or not, for erecting, repairing or altering a building, the person proceeding in pursuance of the contract shall have a lien upon such building and the lot upon which it stands. The lien will not continue in force more than sixty days from the time payment comes due unless a notice of lien is filed in the office of the town clerk. The notice is in the form of a memorandum signed by the lienor. The statute does not require the notice to contain a description of the real estate.

Failure to pay income taxes under Chapter 151 of Title 32 creates a tax lien in favor of the State upon all property belonging to the delinquent taxpayer, whether an individual, corporation, partnership, individual trust, or estate. The lien is valid when recorded.

5. Record of assignment by landlord.--An assignment or any agreement affecting the rights or interest of a landlord or owner or real property occupied by a tenant or sharecropper is to be recorded in the land records of the town in which the land is located.
6. Condominium declarations.--Executing and recording a condominium declaration subjects the land to Vermont's Condominium Ownership Act, Chapter 15 of Title 27. The declaration, which is not valid until it is recorded, must contain several particulars, including a description of the land on which the building is or will be located. Further, a lot plan, floor plan, and verified statement of the architect or engineer must accompany the declaration for recordation. Amendments to the declaration, instruments by which the Condominium Ownership Act may be waived, and all instruments affecting the property or any partment are entitled to be recorded.
7. Vendor's title.--There is an instance in the Vermont statutes where recordation is mandatory under pain of imprisonment. Under Chpter 5 of Title 27, when a person sells and conveys lands, he is requied to record the deed by which he acquired title in the proper office within six months after a subsequent purchaser of the lands so requests. If he fails to do so, the party whose right or title is liable to be affected by the neglect may make a complaint, and a judge may issue a warrant to bring the person before him to be examined. If such person does not show sufficient cause for omitting to procure his deed to be recorded, the judge shall sentence him to jail, there to remain until he does procure it to be recorded.



## B. Recording

In Vermont, the town clerk and the county clerk perform recording duties, pursuant to Chapter II, Section 62 of the Constitution. The scope of those duties is further defined by statute, as follows:

1. Duties of town clerk.--Chapter 35 of Title 24 provides that a town clerk shall record at length or may insert a photostatic copy of deeds in the record books, instruments, evidences respecting real estate, writs of execution, other writs or the substance thereof, and the returns thereon, and other instruments which are delivered to him for record. He is directed to keep, in each of the books of record, a general index of reference to the instruments or records in the book. Instructions regarding the recordation of trust mortgages and assignments of mortgages are provided to the town clerk in Chapter 35. The general index of transactions affecting the title to real estate is to be kept in alphabetical order by grantor and grantee. All general indices required by law to be kept by a town or city clerk may be kept by the card index system if the selectmen or board of altermen so consent.
2. Duties of county clerk.--Chapter 5 of Title 27 requires the county clerk to record, and keep a book exclusively for, deeds and conveyance of lands in an unorganized town or grant and to keep for public use a general index of the record of deeds and other transfers (excluding transfers under a judgment or order of court) of land recorded in his office. A county clerk who fails to keep the index is to be fined \$50 for each six months neglect. In addition, a purchaser of land located in a town, apart from the required recording in the town clerk's office, may cause his deed or other conveyance (along with the certificate of its record in the town clerk's office) to be recorded by the county clerk of the county in which the land is located.
3. Duties in the case of condominium property.--Chapter 15 of Title 27 whereby the record of each condominium declaration contains a reference to the record of each conveyance of an apartment contains a reference to the declaration of the building of which the apartment is a part.
4. Duty to furnish records for taxing purposes.--Chapter 121 of Title 32, relating to the appraisal of real property, provides that when a deed or mortgage of real estate is filed in the town clerk's office, the clerk is to enter in alphabetical order in a book or card index kept for the purpose (1) the names of all grantors, grantees, mortgagors, and mortgagees; (2) the date when filed for record; (3) the number of the volume and page where recorded; (4) a description of the property; (5) the acreage of the property, if ascertainable; (6) the amount of indebtedness secured by the mortgage; and (7) any other data. A copy of this book or index is to be provided to the "listers" (real property tax appraisers) annually.

## C. Real Property Tax Assessment

Chapter 129 of Title 32 provides that, in the assessment and taxation of Vermont real property, grand tax lists are to be made for each town. Each grand list is to contain, among other things, the following information:

(1) the name of each taxpayer; (2) the post office address of all taxpayers and corporations having taxable property in the town; (3) a brief description and the listed valuation of each separate piece or parcel of taxable real estate in the town owned by each taxpayer, and the total value of all such real estate not exempt from taxation. When the grand list book is completed, it is kept in the office of the town or city clerk. Lists of unorganized towns and gores, as made up by the boards of appraisers, are kept in the offices of the clerk of the counties in which the unorganized towns and gores are located.

Further, the director of the division of property valuation and review is directed to prepare maps of the properties of each town of Vermont. These maps are to be updated and revised to reflect property subdivisions, transfers, and other additional information. The maps are available for inspection in the office of the town clerk to whom the director supplies the map. In addition, so as to ensure the safekeeping of town records, the director is to establish and maintain a central file of property records. This central file is to contain a copy of every document recorded with respect to property. The file is to be indexed by property (parcel specific), and each document in the central file is referenced to the location of the original in the records of the town clerk with whom the original is recorded. Periodically, the director is to supply to the clerk of each town indexes of the records of the properties in that town. These parcel specific indexes are to be open to public inspection.

So, in utilizing this method to obtain duplicate property records, Vermont has created a file of all recorded documents indexed by property. Moreover, although computerization is not expressly mentioned, the powers of the property valuation and review division include providing technical assistance and instruction to the "listers" (appraisers) in a uniform appraisal system and developing and recommending to the general assembly a system or formula for standardizing property assessment procedures. In addition, the director is to deliver an annual report to the State Legislature regarding the appraisal practices and methods employed throughout the State, including recommendations for statutory changes. Thus, information generated in tax assessment in Vermont should be complete and organized. The foregoing powers and duties of the property valuation and review division were established in 1977, as was the provision for the annual report. Given such precedents, the adoption of an MPLDS in Vermont would appear to face few obstacles.

#### D. Aliens

Chapter II, Section 66, of the Vermont Constitution provides that:

Every person of good character, who comes to settle in this State, having first taken an oath or affirmation of allegiance to the same, may purchase, or by other just means acquire, hold and transfer land, or other real estate....

Right to ownership of real estate is not infringed, provided the alien takes the oath.



E. Coordinate System

The Vermont Coordinate System, located at Chapter 17 of Title 1 of the Vermont Statutes Annotated, was created in 1945. As defined, the System is that system of plane coordinates which has been established by the U. S. Coast and Geodetic Survey for defining and stating the positions or locations of point on the surface of the Earth within the State of Vermont.

The chapter provides that the position of the System be marked on the ground by stations established in conformity with standards adopted by the Survey. For the purposes of describing the location of any survey station or land boundary corner in Vermont, giving the position of the station or corner on the system of plane coordinates established by the Survey is considered to be a complete, legal, and satisfactory description of such location. However, no coordinates based on the Vermont Coordinate System purporting to define the position of a point or land boundary is to be presented to be recorded in any public land records or deed records unless such point is within a reasonable distance of a station established in conformity with the standards of Chapter 17. In addition, nothing contained in Chapter 17 requires any purchaser or mortgagee to rely solely on a description, any part of which depends entirely upon the Vermont Coordinate System.

## FLORIDA

### I. Observations

This section surveys Florida statutes which require the collection of land data at the State and county level. Florida was chosen to be included in this state of the art survey because of its recent comprehensive legislation on the subject of maps and plats. In addition, Florida has established a statewide system of plane coordinates.

### II. Survey of Florida Real Property Data Systems

#### A. Traditional Real Estate Documentation

Chapter 689 of Florida Statutes Annotated provides that no interest in land for a term of more than one year shall be created or transferred except by an instrument in writing signed in the presence of two witnesses. Chapter 689 provides for the land trust.

Chapter 695 provides that no conveyance, transfer, or mortgage of real property, nor leases for a term of one year or longer shall be good against creditors or subsequent purchasers without notice unless such conveyance, lease, etc., is recorded according to law. Instruments concerning real property must be acknowledged in order to be entitled to be recorded.

Chapter 692 provides that corporations may execute instruments conveying, mortgaging, or affecting any interest in its lands by instruments signed in the corporation's name by the president, vice president, or chief executive officer. Chapter 694 validates certain conveyances which would otherwise be defective.

The clerk of the circuit court has the duty to keep and furnish to the respective county property appraisers in the counties where the instruments are recorded a daily schedule of the deeds and conveyances filed for recordation. The schedule is to set forth the name of the grantor, the name and address of the grantee, and a description of the land. In addition, the clerk is authorized to furnish to private firms and individuals a copy of the daily schedule of deeds and conveyances prepared for the tax assessor.

The circuit court clerk has the right to refuse to record a deed or other instrument conveying an interest in land which does not show the correct address of the grantee.

Contracts for the sale of land must also be acknowledged to be recorded (Chapter 696) and where there is no acknowledgment on the part of the vendor, the recording officers are directed to refuse recordation of



the document. The circuit court clerk and county court judges are authorized to record instruments filed for record by photographic process. "Photographic process" is used in the general sense, to include processes yet to be invented.

1. Plats.--In 1971, the Florida Legislature completely revised the Florida statutes on the subject of maps and plats. The new law, codified at Chapter 177, Florida Statutes Annotated, provides that each plat must be accompanied by a title opinion or a policy of title insurance reflecting ownership of the land to be subdivided, as well as encumbrances thereon. The plat must be submitted to the appropriate governing body, city commission, or council if inside city limits. The plat must contain an appropriate dedication of all public areas and must be prepared with black permanent drawing ink on linen tracing cloth meeting the detailed specifications of the size required by the governing body. Section lines and quarter lines are to be clearly indicated and contiguous properties are to be identified. Provision is made for vacating of existing plats. A prohibition against molestation of any monument or destruction of any recorded plat is established. A violation is punishable as a second degree misdemeanor.

2. State plane coordinate.--Section 177.51 provides for the State plane coordinate. The section provides that coordinates may be used to define or designate the position of points on the surface of the Earth within the State for land descriptions and subdivision purposes, provided that the initial point in the description is tied to the nearest government corner or other recorded and well-established corner. The coordinates consist of two distances, expressed in feet and decimals of a foot. The coordinates are to depend upon and conform to the origins and projections of the Florida Coordinate System and the triangulation and traverse stations of the National Ocean Survey within Florida, as those origins and projections have been determined by such survey. Details are provided as to position of points and the Florida Coordinate System.

Section 177.151(5) provides that, whenever coordinates based on the Florida Coordinate System are used to describe a tract of land which in the same document also is described by reference to any subdivision, line, or corner of the U.S. public land surveys, the description by coordinates is deemed supplemental to the basic description of such subdivision, line or corner contained in the official plat and field notes of record. In case of conflict, the description by reference to the U.S. public land survey prevails over the description by coordinates. Furthermore, purchasers and mortgagees of land are not required to rely on a description, any part of which depends exclusively upon the Florida Coordinate System. The State plane coordinate is not intended to replace traditional legal descriptions, at least not yet. Obviously, however, the design and use of such a system could be helpful in establishing an MPLDS.

3. Coastal mapping program.--Chapter 177 further provides for authorization of a coastal mapping program; the department of natural resources is authorized and directed to conduct a comprehensive program of coastal boundary mapping with the object of providing accurate surveys of the coastline of Florida. The maps must meet certain standards and be approved by the department of natural resources, after the department holds a public hearing in the county or counties in which the land shown on the map is located. Upon approval, copies of the maps are filed among the public land records of all affected counties. Provision is made for revised and supplemental maps. The chapter also provides a means for the identification, restoration, and preservation of controlling corner monuments established during the original cadastral surveys.

4. Condominiums.--Chapter 718 provides that a condominium is created by recording a declaration in the public records of the county where the land is located, executed, and acknowledged with the requirements for a deed. The declaration must contain the legal description of the land, a survey of the land, a graphic description of the improvements in which units are located, and a plot plan sufficient in detail to identify the common elements, each unit, and their relative locations and approximate dimensions. The declaration and all of its exhibits are entitled to recordation as an agreement relating to the conveyance of land.

Regulation and disclosure prior to the sale of residential condominiums also are provided in the chapter. The Division of Florida Land Sales and Condominiums of the Department of Business Regulation has the power to enforce and ensure compliance with the provisions of the chapter. Developers are required to make certain disclosures prior to sale. Contracts and leases of units must contain a notice (in conspicuous type) to the buyer that he may void the agreement within 15 days of its execution. A developer of a condominium which contains more than twenty residential units is required to prepare a prospectus, file it with the Division, and furnish a copy of it to each buyer. The contents of the prospectus as described in the chapter are extensive. Publication of false and misleading information subjects the developer to a suit for damages, including attorney's fees. The chapter makes provision for time-share units, effective August 1, 1979. There are similar regulations and disclosure provisions pertaining to the sale of residential cooperatives in Chapter 719.

5. Internal improvement trust fund - land office.--Provision is made in Chapter 253 for a public land office to be located at the seat of government of the State, where all records, surveys, plats, maps, field notes, and all evidence touching the title and description of the public domain and lands granted to Florida are to be kept.

6. Filings by miscellaneous creditors.--The Mechanic's Lien Law provides for four types of lienors. The first three types do not acquire a lien until a claim of lien is recorded. The fourth type is a materialman or laborer who is not in privity with the owner. The statute



protects these individuals not in privity by requiring them to serve notice to the owner; requiring the contractor to provide the owner with an affidavit that such individuals have been paid; and prescribing the method in which the owner is to make payment. The owner is required to retain the final payment until the contractor has provided the affidavit. If the owner fails to so withhold the final payment, the property improved by these materialmen and laborers is subject to the full amount of all valid liens of which the owner has notice. In order to perfect a mechanic's lien, every lienor (all 4 types) is directed to record a claim of lien. The claim must include a description of the property sufficient for identification. Thus, the claim of lien is parcel specific.

Chapter 197 provides that all taxes imposed pursuant to the constitution and laws of Florida are a first lien, superior to all other liens, on any property against which the taxes have been assessed. Chapter 192 provides that a lien for all taxes, penalties, and interest shall attach to any property upon which a lien is imposed by law on the date of assessment. So as of the date of assessment, the tax lien attaches. Furthermore, Chapter 197 provides that no land shall be divided or subdivided, and no drawing or plat of the division or subdivision of any land shall be filed or recorded in the public records of any county until all taxes have been paid on the land. However, Chapter 270 provides that reversion or reconveyance of former public lands to the state extinguishes the tax liens, with certain exceptions.

Chapter 55 provides that a Florida judgment or decree becomes a lien on real estate in any county when a certified copy of it is recorded in the county (emphasis added). Florida, however, provides a means of removing such liens. Such liens may be transferred by any person having an interest in the real property upon which the lien is imposed, from the real property to other security by depositing a sum of money or filing a bond with the clerk's office. Upon such deposit or filing of bond, details of which are provided in the statute, the clerk is directed to make and record a certificate showing the transfer of the lien from the real property to the security and mail a copy thereof by registered or certified mail to the lienor named in the claim of lien so transferred. Upon the filing of the certificate of transfer, the real property shall be released from the lien. The chapter provides that no money judgment or decree against a municipal corporation is a lien on its property.

Florida has adopted the Uniform Commercial Code and provides for fixture filings at F.S.A. §679.9-401.

7. Corporations.--Chapter 607 provides that corporations have full power to own, control, and dispose of real property. Corporations are required to file annual reports; however, no information as to real property is required in the report.

8. Partnerships.--Florida has adopted the Uniform Limited Partnership Act and the Uniform Partnership Act in Chapter 620. Neither are required to report information regarding real property.

9. Homesteads.--Chapter 222 provides that the head of a family may avail himself of the benefit of the provisions of the constitution and laws exempting property as a homestead from forced sale by making a statement in writing containing a description of the real property and declaring that it is the homestead. The statement is to be signed by the head of the family and recorded in the circuit court.

10. Subsurface owner's interest.--Chapter 211 provides that the clerk of the circuit court keep a record book for the purpose of recording any subsurface interests in real estate. Any owner of subsurface interest may register with the clerk by filing his name, address, and a description of the land in which he has a subsurface interest. This registration entitles the subsurface owner to notice by mail of non-payment of taxes by the surface owner, sale of tax certificates affecting the surface of the land, application for tax deed of the surface interest, and any foreclosure proceedings against the land for unpaid taxes. No tax deeds or foreclosures and affect the subsurface owner's interest if the notice is not given.

11. Real estate transfer tax.--Chapter 201 provides that there is a tax on transfer of real estate of thirty cents for each one hundred dollars. Clerks of the circuit court have the duty to report to the department of revenue the names and addresses of anyone who fails to affix the required amount of stamps of any conveyance. The tax is to be paid by the purchaser, and the document recorded as evidence of ownership.

#### B. County Recorder

Chapter 28 provides that the clerk of the circuit court shall be the recorder of all instruments that he may be required or authorized by law to record in the county where he is clerk. The clerk is directed to record all instruments in one general series of books called "Official Records". He is required to keep a register in which he enters at the time of filing the filing number of each instrument filed for record, the date and hour of filing, the kind of instrument, and the names of the parties to the instrument. The clerk is to maintain a general alphabetical index of all instruments filed for record. Section 28.222 lists the instruments which the clerk shall record as follows:

- (a) Deeds, leases, bills of sale, agreements, mortgages, notices or claims of lien, notice of levy, tax warrants, tax executions, and other instruments relating to the ownership, transfer, or encumbrance of or claims against real or personal property or any interest in it; extensions, assignments, releases, cancellations, or satisfactions of mortgages and liens; and powers of attorney relating to any of the instruments;



- (b) Notices of lis pendens, including notices of an action pending in a United States court having jurisdiction in this state;
- (c) Judgments, including certified copies of judgments, entered by any court of this state or by a United States court having jurisdiction in this state and assignments, releases, and satisfactions of the judgment;
- (d) Certificates of discharge, separation, or service of all citizens of this state with respect to the military, air, or naval forces of the United States. Each certificate shall be recorded without cost to the veteran, but the clerk shall receive from the board of county commissioners or other governing body of the county the service charge prescribed by law for the recording;
- (e) Notices of liens for taxes payable to the United States, and certificates discharging, partially discharging, or releasing the liens, in accordance with the laws of the United States;
- (f) Certified copies of petitions, with schedules omitted, commencing proceedings under the Bankruptcy Act of the United States, decrees of adjudication in the proceedings, and orders approving the bonds of trustees appointed in the proceedings; and
- (g) Any other instruments required or authorized by law to be recorded.

Thus, the clerk is not empowered to record anything he chooses. The clerk is authorized to maintain a separate book for maps, plats, and drawings.

Section 28.223 provides for the recordation of probate records in the same manner as the recordation of instruments under Section 28.222. Wills, codicils, orders revoking the probate of any will or codicil, letters of administration, orders affecting or describing real property, final orders, and orders of final discharge are to be recorded, and no other papers relating to probate matters shall be recorded except on the written direction of the court.

"Other" instruments provided for in Subsection (g) include records, surveys, plats, maps, field notes, patents, and all other evidence touching the title of public lands and property, as provided by Chapter 253.

Chapter 119 declares that it is the policy of Florida that all state, county, and municipal records shall at all times be open for a personal inspection by any person. "Public records" is defined to mean all

documents, papers, letters, maps, books, tapes, photographs, films, sound recordings, or other material, regardless of physical form or characteristics, made or received pursuant to law or ordinance or in connection with the transaction of official business by any government agency.

#### C. Real Property Tax Assessments

Chapter 193, entitled "Assessments", provides that the property appraiser shall ensure that all real property within his county is listed and valued on the real property assessment roll. The real property assessment roll is to include a brief description of the property for purposes of location; the valuation; the owner or fiduciary responsible for payment of taxes on the property and his address. This is a parcel specific approach similar to an MPLDS. The Florida Department of Revenue has general supervision of the assessment and valuation of property under Chapter 195. It also has supervision over the collection and administration of taxes. The chapter further provides that it is the legislative intent that all counties operate on computer programs that are substantially similar and produce data which are directly comparable. The Department of Revenue is to prescribe reasonable rules and regulations which shall prescribe uniform standards and procedures for computer programs installed in any property appraiser's office.

#### D. Environment

Chapter 161 provides for regulation of construction, reconstruction, and other physical activity relating to the preservation of beaches and shores. Strict regulations regarding the placement of and excavation for such construction are set out. Beach and Shore Preservation Districts are established to carry out the beach and shore preservation program.

#### E. Aliens

Article I, Section 2 of the Florida Constitution, as amended in 1974, provides that:

All natural persons are equal before the law and have inalienable rights, among which are the right to enjoy and defend life and liberty, to pursue happiness, to be rewarded for industry, and to acquire, possess and protect property; except that the ownership, inheritance, deposition and possession of real property by aliens ineligible for citizenship may be regulated or prohibited by law.

However, Florida law provides no regulation or prohibition of the ownership and possession of real property by aliens.



F. Home Rule

Article 8, Section 2(b) of the Florida Constitution provides that municipalities have governmental, corporate, and proprietary powers to enable them to conduct municipal government, perform municipal functions, and render municipal services, and may exercise any power for municipal purposes except as otherwise provided by law.

Pursuant to those powers, the Municipal Home Rule Powers Act (Chapter 166) was enacted in 1973. It provides general provisions and specific provisions regarding municipal borrowing, finance, taxation, and eminent domain. Although none of the provisions relate specifically to regulation of real property, the chapter provides that the legislative body of each municipality has the power to enact legislation concerning any subject matter upon which the State legislature may act, except the exercise of extraterritorial power, any subject expressly prohibited by the Constitution, any subject expressly preempted to State or county government by the Constitution or general law, and any subject preempted to a county pursuant to a county charter. County charters and home rule plans are provided for in Article 8, Section 6(e) of the Constitution. Such home rule provisions are done on a county-to-county basis. The Constitution goes into considerable detail for counties provided for in the 1885 Constitution; designated sections of the 1885 Constitution which provided specifically for certain home rule counties remain in full force.

G. Disclosure of Financial Interests by Public Officials and Employees

The Florida code of ethics for public officers and employees, Fla. Stat. Ann. §112.3145, requires State officers, specified employees, local officers, and persons seeking to qualify as candidates for State or local office to annually file a statement of financial interest. State officers and specified employees, as defined in the Code, file their statement with the clerk of the circuit court of the county in which they are principally employed or are residents. Persons seeking to qualify as candidates for public office file their statement with the officer before whom they qualify.

The statement of financial interest is to contain, among other items, the location and description of Florida real property (except for residences and vacation homes) owned directly or indirectly by the person reporting, when such person owns in excess of 5 percent of the value of such real property. The statements of financial interest are public records. This disclosure provision is part of a law governing conflict of interest of government officials.

## ILLINOIS

### I. Observations

This section surveys Illinois statutes relating to the collection of land data. Since Illinois is the home State of the authors, this survey also includes more extensive commentary on those statutes and key areas where constitutional or statutory changes in State law would be necessary to facilitate the inclusion of this data in an MPLDS.

### II. Survey of Illinois Real Property Data Systems

#### A. Traditional Real Estate Documentation

The Illinois Conveyance Act, Ill. Rev. Stat. (1977) ch. 30, § 1, et seq., states that deeds, mortgages, powers of attorney, and other instruments relating to or affecting the title to real estate may be recorded in the county in which such real estate is located. The recordation of a deed is not required to complete its delivery to a purchaser or to effect a conveyance. Recordation is required, however, to protect grantees of real property against the adverse claims of subsequent bona fide purchasers for value. It should be noted that deeds need not recite the holders of beneficial interests of Illinois land trusts; as a result, traditionally only the interest of the holder of legal title - the land trustee - appears of record.

In addition to instruments of conveyance, such as deeds and declarations of easements, a wide variety of other documents are traditionally recorded in Illinois. These include:

1. Subdivision plats.--Chapter 109 of the Illinois Revised Statutes states that, subject to certain exceptions, whenever the owner of land subdivides it into two or more parts, any of which is less than five acres, he must have a plat prepared by a registered land surveyor and approved by the local city or village council. See Ill. Rev. Stat. (1977) ch. 109, §§ 1, 2. Section 1.02 of the Plat Act explicitly requires the filing of the approved plat with the county recorder of deeds. The filing of an acknowledged subdivision plat with the county recorder effects a dedication of the streets and other public open spaces dedicated on the face of the plat.

2. Lis pendens.--Section 405 of the Illinois Civil Practice Act, Ill. Rev. Stat. (1977) ch. 110, states that every condemnation proceeding to sell real estate of a decedent to pay debts, or other suit seeking equitable relief affecting or involving real property shall, upon the filing of a sufficient lis pendens notice with the county recorder of deeds in which the property is located, by constructive notice to every person subsequently acquiring an interest or lien upon the property affected thereby and thus be bound by the proceedings to the same extent as if he or she were a party thereto. Where title of real



property is registered under the Torrens system, pursuant to Ill. Rev. Stat. (1977) ch. 30, § 45, et seq., a separate registration pursuant to § 121 thereof is required to provide constructive notice to subsequent purchasers for value.

3. Condominium declarations.--The Illinois Condominium Property Act, at Ill. Rev. Stat. (1977) ch. 30 §§ 303, 304, states that whenever the fee simple owners of a parcel wish to convert their building into a condominium, they must do so by recording a declaration of intent which sets forth the following minimum particulars:

- (a) the legal description the parcel;
- (b) the legal description of each unit, which may consist of the identifying number or symbol of each unit as shown on the plat; and
- (c) the percentage of ownership interest in the common elements allocated to each unit.

Upon the recording of the declaration and plat of the property, the property is subject to all provisions of the Act, and all units thereon shall be capable of ownership in fee simple or any lesser estate. As each unit owner is entitled to the percentage of ownership in the common elements as set forth in the declaration, the filing of the plat and declaration in essence creates a property right.

4. Filings by miscellaneous creditors.--Ill. Rev. Stat. (1977) ch. 82, § 1, et seq., provides mechanics, contractors, and materialmen who improve real property with a mechanic's lien which attaches, pursuant to Section 1, "as of the date of the contract". Section 7 of the Mechanic's Lien Act states that no contractor shall be allowed to enforce such lien against or to the prejudice of any other creditor or purchaser, unless four months after completion the contractor either sues to enforce the lien or files a claim for lien with the recorder of deeds of the county in which the improvement is located. This claim for lien must contain a verified affidavit which sets forth, among other items, "a sufficiently correct description of the lot, lots or tracts of land to identify the same". As such, mechanic's lien filings are similar to MPLDS filings in that they are parcel-specific. Section 38 of the Act requires the county recorder to keep an abstract of the claims for lien filed pursuant to the Mechanic's Lien Act. The abstract must contain a description of the property charged with the lien.

Illinois has adopted the Uniform Commercial Code. Section 9-401(b) of the Code states that the proper place to file a fixture filing to perfect a security interest is in the officer where a mortgage or real estate would be filed or recorded -- i.e., with the county recorder of deeds where the real property containing the fixtures is located. Section 9-402(5) states that fixture filings must contain a description of real estate. As a result, fixture filings in Illinois are parcel-specific.

Illinois statutes create a variety of liens against real property in behalf of various governmental agencies. For example, Ill. Rev. Stat. (1977) ch. 48, § 721, creates a lien in favor of the Director of the Department of Labor upon all the real or personal property of employers from whom unemployment contributions are due. Section 721 states that lien is invalid as to innocent purchasers for value unless notice of the lien has been filed by the Director in the office of the recorder of deeds in which the property subject to the lien is located. See also Ill. Rev. Stat. (1977) ch. 120, §§ 444a, 444b, concerning liens arising out of the nonpayment of sales taxes.

5. Real estate transfer tax act.--Ill. Rev. Stat. (1977) ch. 120, § 1001, et seq., imposes a tax "on the privilege of transferring title to real estate" at the rate of 50 cents for each \$500 of consideration or fraction thereof. Pursuant to Section 1003, county recorders are prohibited from recording deeds unless the proper amount of revenue stamps are purchased and affixed to the deed. At the time a deed is presented for recordation, a declaration executed by the parties to the conveyance or their agents must be presented to the recorder which states the full consideration for the property; the permanent real estate index number of the property, if any; the legal description of the property; the date of the deed; the type of deed; the address of the property; the type of improvement, if any, on the property conveyed; information as to whether the transfer is between relatives or is a compulsory transaction; and the lot size or acreage. The recorder of deeds does not record this declaration, but transmits it to the county assessor who inserts the most recent assessed value of the property before delivering the declaration to the Illinois Department of Local Government and Affairs (DLGA). County assessors may use data provided in the declaration for reassessing the property; the State DLGA uses this information in equalizing assessed values among all the counties in the State. Section 1005 states that [d]eclarations of value under this Act are public records and shall be made available for inspection, upon request, during regular business hours." As such, Illinois law already provides a parcel-specific method of determining the considerations paid for real estate in the open market.

6. Installment sales contracts.--Ill. Rev. Stat. (1977) ch. 29, § 8.12, with respect to contracts executed, states that subsequent to January 1, 1968, all contracts for the sale of a dwelling structure may be recorded or registered with the county recorder, notwithstanding contractual provisions to the contrary.

7. Corporate reporting. Ill. Rev. Stat. (1977) ch. 32, § 157.95(g), states that the annual report of the corporation must include a statement, expressed in dollars, of the value of all the property owned by the corporation; however, if all the property owned is located in Illinois or the corporation elects to pay the franchise tax on the basis of its entire stated capital and paid in surplus, the information



need not be set forth in the annual report. No details as to type or location of the property are required.

Similarly, the Illinois limited partnerships existing pursuant to Ill. Rev. Stat. (1977) ch. 106-1/2, § 44, et seq., are not required to report the nature, location or extent of their real estate holdings.

#### B. The County Recorder Of Deeds

The responsibility of recording qualified documents falls upon the county recorder of deeds, Ill. Rev. Stat. (1977) ch. 115, § 9. Pursuant to Section 12 of Chapter 115, the recorder is required to keep seven categories of books: (1) entry book; (2) grantor's index; (3) grantee's index; (4) index to each book of record; (5) abstract or "tract" book (if required by the county board); (6) index to recorded maps, plats, and subdivisions; and (7) alphabetical index of parties against whom judgments have been rendered, and of parties named in notices recorded pursuant to suits in equity involving real property. The recorder may install a computerized system that will permit automated entry and indexing, alphabetically by document, to provide quick search and retrieval of entries and hard copy print output. If a computerized system has been in use for six months, and the recorder determines that it provides accurate and reliable indices that may be stored as permanent records more quickly and efficiently than the system previously used, he may discontinue the use of the manual system.

#### C. Real Property Tax Assessment Data

Real property tax assessment responsibilities in Illinois fall upon either county assessors or county boards of assessors. Section 511 of the Illinois Revenue Act, Ill. Rev. Stat. (1977) ch. 120, requires that all real property be listed for taxation by a proper legal description in the name of the owner thereof. However, no assessment of real property is considered illegal under Section 511 by reason of the same not being listed in the name of the proper owner. In short, Section 511 of the Illinois Revenue Act states that assessments of real property are legal and binding if the property is properly described, despite the fact that the name of the assessee-owner may be incorrect. As such, the approach of the Illinois Revenue Act is similar to that of an MPLDS in that it is parcel-specific.

Section 511 also states that an assessor has the discretion to establish a "real estate index number system". The real property tax permanent index number system utilized in some Illinois counties parallels the MPLDS parcel identifier. Section 511 provides that the use of these index numbers may be either in lieu of, or in addition to, the listing of real property by legal description. County tax assessors also administer the division and consolidation of parcels for tax purposes.

Section 483.01 of the Illinois Revenue Act provides that the assessor is to make his property record cards available for public inspection. The

result is that a historical breakdown of the assessed value of each parcel of real property, divided into components for land and improvements, is available for public scrutiny in the office of the county assessor. These property record cards often contain staff field sketches of the configuration of buildings and other improvements on a given parcel. This type of data presumably would be included in an MPLDS.

#### D. Judgment Liens; Probate Rulings

Pursuant to the Illinois general Judgments Act, a judgment when rendered becomes a lien on the real property of the judgment debtor. Ill. Rev. Stat. (1977) ch. 77, § 1. <sup>61/</sup> Illinois is similar to a number of other States in that the Judgments Act does not require the judgment creditor to file any notice of lien with a county recorder of deeds where the judgment has been entered for the lien to be effective. A lien on the real estate in a county other than that within which a judgment is rendered can be effectuated by filing a transcript of the judgment in the office of the clerk of any court of record in the other county. A judgment creditor may protect a Federal judgment lien in counties outside the U.S. district where the judgment was entered in the same manner, Ill. Rev. Stat. (1977) ch. 77, § 69a, as amended in 1963. The result is that parties examining title to real property must search the alphabetical index of parties against whom judgments have been rendered. This index is kept by the county recorder of deeds, pursuant to Ill. Rev. Stat. (1977) ch. 115, § 12. This index is, of course, not parcel specific. The Uniform Simplification of Land Transfers Act at §§ 1-201, 3-202, 3-213, 3-214, and 4-301(b) suggests that judgment liens be recorded in a parcel-specific manner. See also Lane and Edson, supra at pp. II-43 to II-49. Presumably, a parcel-specific record of judgment liens would be included in an MPLDS. It should be noted that requiring such parcel-specific filings imposes significant discovery responsibilities upon judgment creditors.

Similarly, probate court rulings which affect the transfer or conveyance of real property are not recorded under the Illinois Probate Act, Ill. Rev. Stat. (1977) ch. 110-1/2, § 1-1, et seq. As discussed in Lane and Edson, supra at p. II-40, the result is that gaps will appear in the chain of title to a parcel affected by probate court decisions. An encyclopedic MPLDS presumably would include all public documents affecting the ownership or use of real property. As a result, probate rulings affecting real property would be included in the system.

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<sup>61/</sup> A number of other states provide for judgment liens in particular situations. See, for example, Ill. Rev. Stat. (1977) ch. 40, § 21, concerning liens arising out of divorce proceedings.



#### E. Foreign Investment

Illinois law does not require that aliens or foreign corporations register or identify their real estate holdings. However, Ill. Rev. Stat. (1977) ch. 6, §2, limits the rights of aliens over the age of 21 to hold title to real estate for a period of six years. If the alien has not become a naturalized citizen at the end of this six-year period, "it shall then be the duty of the state's attorney of the county in which such lands are situated to proceed by complaint, in the name of the People of the State of Illinois...to compel a sale of such lands...." Should the State's attorney fail to bring such an action within thirty days of being notified that an alien holds title to property in violation of Illinois law, Section 2 authorizes a citizen's suit and the award of attorney's fees. However, in People ex re Kunstman v. Shiusaku Nigaro, 389 Ill. 231 (1945), the Illinois Supreme Court held that §2 improperly authorized persons not having responsibility of office to express the powers of the State's attorney. The viability of this decision under the Illinois Constitution of 1970, which does not list State's attorneys as constitutional officers, is open to question. However, in reaching its decision the Court reasoned that, "without the protecting arm of the state's attorney, we can readily see how private citizens might inflict serious abuses on those whom they supposed were aliens..." 389 Ill. at 251. Chapter 6 of the Illinois Revised Statutes is silent about the legality of long-term foreign corporation investment in Illinois real estate.

Were the public eager to administer this law effectively, a statute requiring the registration of alien holdings in some central location would be required. An MPLDS, of course, would be capable of managing this information.

#### F. Miscellaneous, Unrecorded Information

State law now requires the preparation of various reports and the issuance of numerous permits which relate to the condition of real property without requiring that these documents be recorded. Arguably, some of these reports would be useful to an MPLDS.

For example, Section 374(h) of the Land Sales Act, Ill. Rev. Stat. (1977) ch. 30, §374, et seq., requires those who subdivide land into fifty or more individual lots to prepare a property report designed to provide a proposed purchaser with the following information:

- (1) the name and principal address of the subdivider;
- (2) a general description of the subdivided lands, stating the total number of lots, parcels, units or interests in the offering;
- (3) the significant terms of any encumbrances, easements, liens and restrictions, including zoning and other regulations affecting the subdivided lands and each lot or unit, and a statement of all existing taxes and

- existing or proposed special taxes or assessments which affect the subdivided lands;
- (4) a statement of the use for which the property is offered;
  - (5) information concerning improvements, including streets, water supply, levees, drainage control systems, irrigation systems, sewage disposal facilities and customary utilities, and the estimated costs, date of completion and responsibility for construction and maintenance of existing and proposed improvements which are referred to in connection with the offering or disposition of any interest in subdivided lands;
  - (6) such additional information consistent with the Act which may be required by the State Department of Registration and Education to assure full and fair disclosure to prospective purchasers.

The property report must be approved by the Department of Registration and Education. The Department may require that the property report be amended to reflect material changes. As such, these reports could supply land use planners, developers, and the like with a permanent still picture of a site for their future reference.

Similar reports describing the condition of real property have been required by municipal ordinances. A recent trend concerns condominium conversions in Illinois. The State Condominium Property Act, Ill. Rev. Stat. (1977) ch. 30, §304, et seq., requires that various disclosures be made to prospective purchasers (Section 322), but does not require the recording of such information except for that which might be contained in the Declaration of Condominium Ownership. The inclusion of municipally required property reports in the MPLDS would provide useful information to future purchasers of used condominium units, appraisers, and local building departments. Some municipal building departments now maintain computerized data on building conditions and building code violations which also might be included in an MPLDS.

Other laws generate official plans and data which also might be contained in an MPLDS. While most of this information is not site-specific, in the sense that this data affects more than one parcel, an MPLDS might be indexed in such a way that land use planners, real estate developers and civic groups could readily obtain pertinent information governing the potential use of land. For example, the comprehensive land use plans generated by local planning commissions pursuant to Ill. Rev. Stat. (1977) ch. 24, §11-12-6, might be included, together with municipal or county zoning maps. The reports of local soil and water conservation districts, which are made available pursuant to Ill. Rev. Stat. (1977) ch. 5, §106, et seq., could be indexed in the same manner. Soil and water conservation districts also are authorized to adopt land use regulations of their own which also would be useful to an MPLDS. See Ill. Rev. Stat. (1977) ch. 5, §128.



Recently enacted environmental laws generate data which also might be included in an MPLDS. While the Illinois Environmental Protection Act, Ill. Rev. Stat. (1977) ch. 111-1/2, §1001, et seq., does not call for the creation of environmental impact statements concerning State projects similar to those required under §102(2)(c) of the Federal National Environmental Policy Act (NEPA), 42 U.S.C.A. §§4331-4335, 4341-4342, 4344, State environmental control officers decide upon State air and water pollution control implementation plans which might be included in an MPLDS. See Section 110 of the Clean Air Act, 42 U.S.C.A. §1857, et seq., and Section 303 of the Water Pollution Control Act, 33 U.S.C.A. §1251, et seq. The State also issues NPDES discharge permits pursuant to the Federal Water Pollution Control Act, cited above, which might also be included in an MPLDS and indexed to the specific parcel involved. The Federal Government is itself a major source of environmental data. Agencies of the Federal Government generate environmental impact statements under Section 102 of NEPA, publish ambient air quality and water quality standards which would be of concern to industrial developers, and issue a wide variety of permits. Each MPLDS parcel identifier might contain a reference to the existence of environmental information which is relevant to the parcel and its immediate environs. The benefits of including such data in an MPLDS must, of course, be weighed against the costs involved.

The public concern over the phenomenon known as "redlining" has led to the passage of the Financial Institutions Disclosure Act, Ill. Rev. Stat. (1977) ch. 95, §201, et seq. Redlining might be described as the practice of systematically refusing to extend credit, or the practice of extending credit on unusually onerous terms solely because the secured property is located in a particular neighborhood, and not because of any particular risks involved. The Financial Institutions Disclosure Act is designed to reveal which banks, insurance companies, mortgage banking companies, or savings and loan associations might be engaged in redlining urban areas in violation of the "Illinois Fairness in Lending Act", Ill. Rev. Stat. (1977) ch. 95, §301, et seq., by requiring that these lenders file semiannual reports which reveal the aggregate amount of written loan applications they have received and the aggregate amount of loans they have issued by census tracts. The Financial Institutions Disclosure Act explicitly protects the names of depositors and mortgators as confidential information. As such, the Act is capable of revealing aggregate levels of real estate investment in particular urban communities by census tract.

Having surveyed Illinois law for the existence of real property and land use information, it is appropriate to examine whether State constitutional or statutory amendments would be required to unite this data in an MPLDS.

### III. Constitutional and Statutory Changes Necessary to Create an MPLDS

A review of existing real property data systems in Illinois raises a number of legal questions relevant to the creation of an MPLDS.

A. The Authority of County Recorders to Participate in an MPLDS

The use of a parcel-identifier system, as opposed to the traditional grantor-grantee index, is essential to the creation of an MPLDS. Does Illinois law authorize county recorders to institute parcel-oriented systems?

Article 7, Section 3 of the Illinois Constitution of 1970 states that:

(d) County officers shall have those duties, powers and functions provided by law and those provided by county ordinance. County officers shall have the duties, powers or functions derived from common law or historical precedent unless altered by law or county ordinance.

The use of parcel-identifiers and MPLDS techniques probably is not inherent within the "duties, powers or functions derived from common law". The Illinois legislature has set forth the responsibilities of county recorders in Ill. Rev. Stat. (1977) ch. 115, §12, noted above, which directs recorders to keep seven categories of books. None of these books, with the possible exception of abstract books occasionally required by county boards, is parcel-oriented. Consequently, an Illinois county recorder might decide that it would be beyond his authority to expend money on a parcel-oriented MPLDS system without a legislative amendment.

It should be noted that Section 12 of Chapter 115 permits Illinois recorders to experiment with computerized systems and authorizes the replacement of manual recording systems with compatible systems which have proven successful over a period of six months. This is a step in the direction recommended by the Uniform Simplification of Land Transfers Act, whose draftsmen urged that recorders be statutorily authorized to do their job without being hamstrung by legislation as to how to do it. The reference in Section 12 to computerization, however, appears to be limited to the seven categories of books required of the recorder in Illinois. As such, the creation of an MPLDS in Illinois would require a more comprehensive enabling statute with respect to the participation of county recorders in computerized record-keeping.

B. The Authority of County Tax Assessors to Participate in an MPLDS

Another important data gatherer in Illinois is the county tax assessor. Because tax assessors are constitutional county officers, the analysis of Article 7, Section 4(d) of the Illinois Constitution set forth above would apply to the delineation of the assessor's responsibilities. While assessing officers are already using the parcel-identifier system in Illinois, no State law presently mandates an assessor's use of parcel identifiers or an assessor's participation in an MPLDS. An assessor could take the position that he could not make any expenditures to



contribute data to such a system, absent common law or statutory authority. As such, a comprehensive State statute setting forth the assessor's role in an MPLDS would be the optimal way to guarantee the cooperation of county tax assessors.

### C. The Impact of Home Rule

Article 7, Section 6 of the Illinois Constitution introduced the concept of "home rule" to Illinois law. Within certain defined limits, the home rule power allows qualified units of government to "exercise any power and perform any function pertaining to its government and affairs including, but not limited to, the power to regulate for the protection of the public health, safety, morals and welfare". While all of the limits to home-rule powers have not yet been definitively construed by the judiciary, often times the exercise of home rule authority leads to the avoidance of practices and procedures imposed upon local officials by State statutes such as the Illinois Municipal Code. Could home-rule municipalities and counties, by ordinance, effectively repudiate attempts of the State legislature to impose MPLDS-related duties upon their county recorders, tax assessors, and other officers? If the answer is yes, the home rule provisions of the Illinois Constitution of 1970 would have to be amended to guarantee the state-wide effectiveness of an MPLDS.

As indicated above, Article 7, Section 4(d) of the Illinois Constitution states that county officers shall have those duties, powers, and functions provided by law and those provided by county ordinance. Article 7, Section 6(f), contains this reference to the power of home rule counties with respect to their officers: "A home rule county shall have the power to provide for its officers, their manner of selection and terms of office in the manner set forth in Section 4 of this Article."

On its face, Article 7, Section 6(f), appears to be giving home-rule counties carte blanche powers only with respect to the salaries, selection, and terms of county officers. It does not appear to directly conflict with the provision of Article 7, Section 4(d), which states that county officers shall have those duties and powers provided by law. Theoretically, it would appear that county officers have two different types of responsibilities: first, to administer laws which directly pertain to the "government and affairs" of their home-rule locality; and second, to administer laws which provide and facilitate a uniform system of law and commerce throughout the State. A uniform method of land data recordation would appear to be more a State than a local concern. Perhaps the narrow question is whether home-rule authority permits a unit of local government to resist laws which attempt to promote the welfare of the entire State.

The case law suggests that State legislation which seeks to promote the welfare of the entire State cannot be thwarted by the exercise of home-rule powers. See Part III of this Chapter.

However, to the extent that county recorders participate in MPLDS functions, it also would be helpful to repeal the following underlined sentence in Ill. Rev. Stat. (1977) ch. 115, §4:

4. Uniformity of functions and powers -  
Functions, powers and duties. §4. The functions and powers of the recorders of deeds shall be uniform in the various counties of this State. The recorder of deeds has those functions, powers and duties as provided in Sections 4.1 through 4.5. This amendatory Act of 1971 does not apply to any county which is a home rule unit. Amended by P.A. 77-1727, §1, eff. Dec. 1, 1971. [Emphasis added].

D. Including Judicial, Land Use and Environmental Data in the MPLDS

As indicated above in Section II.C., State courts generate decisions which affect the title to real property. Section II.E. above discussed how a variety of land use and environmental data is generated by state agencies and local municipalities. An MPLDS should include judicial liens and probate court decisions. An MPLDS also might include key relevant comprehensive land use plans, environmental impact statements, and soil reports to pertinent parcel identifiers as a quick reference for planners, governmental agencies, developers, and citizens' groups.

Requiring that judgment liens and probate court orders be included in an MPLDS would require amendment of the Illinois Judgment Act and Probate Act. Where a State agency generated information appropriate for MPLDS indexing, it would be relatively simple to require the agency to file the documents with MPLDS by means of either amendment to State statute or by executive order of the Governor.

Where counties or home-rule municipalities have generated the sought-after information, the ability of the State to require MPLDS participation of home-rule units turns once again on the issues described in Section III.C. above. Despite the existence of home-rule powers, the State, as sovereign, should be entitled to direct state-chartered units of local government to cooperate in promoting the statewide public welfare by means of an MPLDS.

To the extent that an MPLDS requires cooperation among various officers and governmental entities, there already is an important precedent in Illinois law. Article 7, Section 10 of the Illinois Constitution of 1970, entitled "Intergovernmental Cooperation", states:

(a) Units of local government and school districts may contract or otherwise associate among themselves, with the State, with other states and their units of local government and school districts, and with the United States to obtain or share services and to exercise, combine, or



transfer any power or function, in any manner not prohibited by law or by ordinance. Units of local government and school districts may contract and otherwise associate with individuals, associations, and corporations in any manner not prohibited by law or by ordinance. Participating units of government may use their credit, revenues, and other resources to pay costs and to service debt related to intergovernmental activities.

(b) Officers and employees of units of local government and school districts may participate in intergovernmental activities authorized by their units of government without relinquishing their offices or positions.

(c) The State shall encourage inter-governmental cooperation and use its technical and financial resources to assist inter-governmental activities.

See also Ill. Rev. Stat. (1977) ch. 127, §186, et seq., which establishes a commission to encourage intergovernmental cooperation.

Of course, State legislation cannot force the Federal Government to contribute relevant data -- such as its environmental impact statements, air quality standards, etc. -- into a State MPLDS. Federal legislation would have to provide the impetus for the prompt inclusion of this data in a State MPLDS computer terminal.

#### IV. Conclusion

While the creation and implementation of an MPLDS in Illinois would not require any constitutional amendments, an effective MPLDS could best be enacted by means of comprehensive legislation which (1) articulates the statewide interest in aggregating real estate, land use, and environmental data in order to facilitate not only traditional real estate functions, but land use, environmental, and health planning; and (2) directs how and when particular officers, units of local government, and agencies are to contribute relevant data to the MPLDS.

### COLORADO

#### I. Observations

This section surveys Colorado statutes which require the collection of land data at the State and county level. Colorado statutes provide for

a system of plane coordinates. Unlike the other six States included in this survey, Colorado requires disclosure of the beneficiary of a conveyance of real property in trust. In spite of a strong constitutional provision in which aliens are entitled to the same property rights as native born citizens, Colorado farmers and ranchers, fearing foreign investment in agricultural land, have lobbied for legislation restricting foreign ownership.

## II. Survey of Colorado Real Property Data Systems

### A. Traditional Real Estate Documentation

Title 38 of the Colorado Revised Statutes contains the laws relating to property. Article 35 provides a form of acknowledgment of instruments affecting real estate, although an acknowledgment is not required to effectuate a conveyance unless there is an express statutory provision to the contrary. All deeds, powers of attorney, agreements, or other instruments in writing which convey, encumber, or affect the title to real property, certificates, certified copies of orders, judgments and decrees of courts of record may be recorded in the office of the county clerk and recorder of the county where such real property is situated. No such instrument is valid against third parties until it is deposited with the clerk and recorder. Filing with the clerk and recorder is equivalent to recording.

Deeds dated after January 1, 1977, must include the legal address of the grantee of the instrument in order to be recorded, although acceptance by the county clerk and recorder of a deed which lacks the address will not invalidate the deed. A notation of the address may be made by a person other than the grantee after the execution of the deed.

The filing of notice of lis pendens is notice to all persons who may subsequently acquire any interest in the real property. In order to convey or encumber homestead property, or to release a homestead exemption, the document is to be executed by the husband and wife if the owner is married.

All documents of title relating to real property are to include the street address of the property as an aid to identification. However, in the event of ambiguity, the legal description of the property governs; and the fact that a document of title does not contain an address will not render the document ineffective or render the title unmarketable.

Article 36 provides for title registration under the Torrens system. Application to have property registered is recorded in the office of the county clerk and recorder in the county in which the land is situated. The county clerks and recorders are the registrars of title in their respective counties.



Article 30, section 108 requires that a beneficiary be named in instruments which convey interests in real estate. Specifically, this "statute of uses" provides that:

all instruments conveying real estate, or interests therein, in which the grantee is described as trustee, agent, conservator, executor, administrator or attorney-in-fact, or in any other representative capacity, said instrument shall also name the beneficiary so represented and define the trust or other agreement under which the grantee is acting, or refer, by proper description to book, page, document number, or file to an instrument, order, decree, or other writing which is of public record in the county in which the land so conveyed is located in which such matters appear; otherwise the description of a grantee in any such representative capacity in such instruments of conveyance shall be considered and held a description of the person only and shall not be notice of a trust or other representative capacity of such grantee.

This disclosure requirement is not found among the other State statutes included in this survey. Colorado provided a five-year period for the grantee, beneficiary, or other interested person to file a statement setting forth the name of the beneficiary and defining the terms of the agreement which established the representative relationship. Filing such a statement constituted notice of trust. The Colorado Court of Appeals has ruled that an 1894 deed which named the testator as the trustee for an unnamed beneficiary passed legal and equitable title to the trustee, such that the property passed by a residuary clause of his will to his daughter. <sup>59/</sup> No affidavit had been filed during the five-year period. A non-record, undisclosed beneficiary thus loses his rights to Colorado real estate.

Other documents which are recorded in Colorado include:

1. Homestead exemptions.--Homesteads are exempt from execution under Article 41 in an amount not to exceed \$7,500. The exemption is created automatically if occupancy and property type rules are met. Otherwise, the exemption is not created unless the householder records in the office of the county clerk and recorder of the county where the property is located an instrument in writing describing the property and the householder's interest therein.

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<sup>59/</sup> Board of County Commissioners of the County of Petkin v. Blanning,  
479 P.2d 404 (Colo. App. 1970).

2. Oil, gas and mining leases.--Under Article 42, when recorded leases covering oil, gas, and mining interests given on Colorado land expire, the lessee has the duty to have the lease surrendered in writing, signed by the party making the surrender, acknowledged, and recorded in the county where the leased property is situated within 90 days after the expiration date. If the owner of the lease fails to so surrender the lease, then the owner of the leased premises may sue to obtain it, recovering costs, one hundred dollars in damages, attorney's fees, and any additional damage. Lessees also are required to record an affidavit if they claim an extension of the term of the lease beyond its primary or definite term. The affidavit is to be filed within six months of the expiration of the primary or definite term. If the affidavit is not recorded, then six months after the expiration of the primary or definite term of the lease, the record of it (if any) ceases to be notice and has no more effect than an unrecorded instrument.

3. Boundary agreements.--Pursuant to Article 44, which provides a judicial procedure for settling boundary disputes, landowners may agree to a line, disputed corner, or boundary by written agreement signed and acknowledged by each party. The agreement is to be accompanied by a map or plat thereof and all documents are recorded.

4. Surveys and boundaries.--Article 50 sets out instructions for land surveyors who make subdivisions of sections. Counties are authorized to make copies of the original field notes and plates of surveys of all lands surveyed by officers of the Federal Government. The copies of the field notes and plats are to be filed in the office of the county clerk and recorder of the proper county and are thereafter the public records of the county.

5. Land surveys and plats.--Article 51 provides minimum standards for land surveys and plats, and provides that all land survey plats or maps recorded in any Colorado county after July 1, 1967, must include the following:

- (a) A scale drawing of the boundaries of the land parcel;
- (b) Recorded and apparent rights-of-way and easements;
- (c) All dimensions necessary to establish the boundaries in the field;
- (d) A statement by the land surveyor that the survey was performed by him or under his direct responsibility, supervision, and checking;
- (e) A statement by the land surveyor explaining how bearings, if used, were determined;
- (f) A description of all monuments, both found and set, which mark the boundaries of the property, and a description of all control monuments used in conducting the survey;
- (g) A statement of the scale or representative fraction of the drawing, and a bar-type or graphical scale;
- (h) North arrow;
- (i) Title description or reference thereto; and
- (j) Signature and seal of the land surveyor.



These items are required in addition to any information required by local authorities. Any person who willfully violates any provision of Article 51 is subject to criminal sanctions. District attorneys are directed to prosecute such violations.

6. Condominium declarations.--Condominium declarations are to be recorded under Article 33, which does not stipulate content beyond the definition of character, duration, rights, obligations, and limitations of condominium ownership. A map which locates the units of the condominium is to be filed with the declaration.

7. Conservation easements.--Article 30.5 provides legislative recognition of conservation easements in gross. To be valid, instruments creating, assigning, or otherwise transferring such easements must be recorded upon the public records affecting the ownership of real property.

8. Solar easements.--Article 32.5 provides that any easement obtained for the purpose of exposure of a solar energy device is to be created in writing and is subject to the same conveyancing and instrument recording requirements as other easements. Certain items to be included in the instrument are set out.

9. Filings by miscellaneous creditors.--Article 22 provides that mechanics, materialmen, contractors, builders, architects, engineers, and artisans who supply labor, materials, designs, plans, plats, or other services have a lien upon the real property upon which they have supplied material, labor, or services. Any person who wishes to avail himself of the provisions of Article 22 is required to file a lien statement in the office of the county clerk and recorder of the county where the property is located. A description of the property to be charged with the lien is to be included in the lien statement; generally the statement must be filed for record before the expiration of three months after the day on which the last labor was performed or the last material furnished by the lien claimant.

Under Article 23, co-owners of irrigation ditches are required to keep the ditches clean and in repair. Co-owners who perform this duty have a lien upon the interest of any delinquent co-owner for his proportion of the cost and expense. A person who wishes to avail himself of the provisions of Article 23 is required to file a verified statement specifying the name of the ditch in the office of the county clerk and recorder of the county where the ditch is located.

Article 25 provides that notices of liens upon real property for taxes payable to the United States and certificates and notices affecting the liens (such as certificates of discharge and notices of revocation) are to be filed in the office of the county clerk and recorder of the county in which the real property subject to the lien is located. The lien is not valid as against any mortgagee, purchaser, or judgment creditor until it is so filed.

Article 9 of Title 4 contains the Uniform Commercial Code which provides that the proper place to file a fixture filing is in the office of the county clerk and recorder in the county where the real estate is located. Fixture filings must contain a description of the real estate.

10. Documentary fee on conveyances of real property.--Article 13 of Title 39 imposes a documentary fee on every person offering for recording in the office of the county clerk and recorder any deed or instrument wherein title to Colorado real property is granted or conveyed. The fee is computed (with exceptions) at the rate of one cent for each one hundred dollars. Payment is evidenced by imprinting on the document the amount and date paid. No deed or instrument to which the fee applies is to be recorded until the fee is paid. Any county clerk and recorder who willfully and knowingly records an applicable document without collecting the fee is guilty of a misdemeanor punishable by a fifty dollar fine. The county clerk is directed to forward a copy of all instruments to which a fee applies to the office of the county assessor. The purpose of this article is to provide the assessor with information of the valuation of property. The assessor has the duty to examine at least once a year all documents recorded in his county upon which documentary fee has been paid and to determine in each case the consideration upon which the fee was computed and paid. He is directed to compile and maintain a continuing record of all these considerations to assist him in appraising property and determining the actual value thereof.

11. Colorado coordinate system.--Article 52 of Title 38 contains provisions for the Colorado Coordinate System. The system of plane coordinates which has been established by the U.S. Coast and Geodetic Survey for defining and stating the positions or locations of points on the surface of the Earth within the State of Colorado is designated the "Colorado Coordinate System". No coordinates based on the Colorado Coordinate System purporting to define the position of a point on a land boundary are to be presented to be recorded in any public records or deed records unless such point is connected to a triangulation or traverse station established in conformity with certain standards. Whenever coordinates based on the Colorado Coordinate System are used to describe any tract of land which in the same document also is described by reference to any subdivision, line, or corner of the U.S. public land surveys, the description by coordinates shall be construed as supplemental; in the event of any conflict, the description by reference to the public land survey prevails over the description by coordinates, unless the coordinates are upheld by adjudication; at that time, the coordinate description prevails. Nothing in Article 52 requires any purchaser or mortgagee to rely on a description, any part of which depends exclusively upon the Colorado Coordinate System, unless the description has been adjudicated as explained above.



## B. County Clerk

Article 10 of Title 30 provides that the county clerk is the recorder of deeds and shall have custody of all the books, records, deeds, maps, and papers deposited or kept in his office. He has the duty to record all deeds, mortgages, maps, instruments, and writings authorized by law to be recorded in his office. The recorder is directed to keep a general index, direct and inverted, in which entries are made alphabetically by grantor (direct) and grantee (inverted) name. He also is directed to keep a grantor index and grantee index to each volume of record kept in his office. Although the recorder is not required to keep a tract index, he is required to furnish abstracts of title upon application and payment of fee. Tract indices kept by a recorder for the purpose of preparing these abstracts have been held to be public records by the Supreme Court of Colorado. 60/ When authorized by the board of county commissioners, the recorder may record instruments by microfilm.

## C. Real Property Tax Assessment Data

Using the record compiled as explained above, the assessor has the duty to appraise real property, considering also factors of location, functional use, and productive capacity. He has the duty to list all taxable real property located within his county on the assessment date. In describing the property in the assessment list, the assessor is directed to identify it by section, township, and range. In listing town or city lots, the assessor has the duty to describe the lots by number of lot and block, or otherwise in accordance with the system of numbering or describing used by the town or city in which the lots are located. A new provision of Article 5 of Title 39 (added in 1976) provides that prior to January 1, 1981, each assessor shall prepare and maintain full, accurate, and complete maps showing the parcels of land in his county. The maps are to include a master county index map, showing the applicable township, section, and quarter-section maps. Guidelines to produce uniformity throughout the State are to be established by the property tax administrator. The guidelines are to include the definition of a parcel, the development of a parcel numbering system, map size, map scale, and suggestions for minimum information to be plotted.

## D. Aliens

Article II, Section 27 of the Constitution of Colorado provides as follows:

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60/ Treat v. McDonough, 148 Colo. 603, 367 P.2d 587 (1961).

Section 27. Property rights of aliens. Aliens, who are or may hereafter become bona fide residents of this state, may acquire, inherit, possess, enjoy, and dispose of property, real and personal, as native born citizens.

In spite of the above provision of the Colorado Bill of Rights, alien ownership of Colorado farmland would have to be reported to the county clerk under a bill approved in March 1979 by a Colorado House committee. As reported in the Denver Post for the week of March 19, 1979, the bill, HB 1144, provides that anyone filing false or misleading information would forfeit the land in question to the State. In addition, any alien not reporting his ownership could be taken and sold. In that case the proceeds from the sale would be returned to the alien. "Alien" is defined to mean a person who is not a citizen of the United States. Corporations would be required to report if 20 percent of its stock is owned by aliens.

If the bill is enacted, it would be subject to attack on the basis that it interferes with an alien's constitutional right to "possess" and "enjoy" real property.

The Colorado Probate Code emphasizes this constitutional right to acquire real property by providing that no person is disqualified to take as heir because he or a person through whom he claims is or has been an alien.

#### E. Home Rule

Article XX of the Constitution of Colorado, entitled "Home Rule Cities and Towns", provides for home rule for the city and county of Denver in Sections 1 through 5. Section 6 provides for home rule for cities and towns having a population of two thousand. The powers conferred to charter cities are specifically stated; the intention of the article is to grant and confirm to the people of the applicable municipalities the full right of self-government in local and municipal matters. Power to change traditional real estate statutory provisions is not provided. The codification of municipal home rule is found in Title 31, Article 2, Part 2.



## Chapter 12

### POLITICS OF INFORMATION

Robert Warren\*

#### INTRODUCTION

One of the questions currently being debated in the United States concerns whether foreign direct investment in land in this country is producing negative economic and social effects for Americans, particularly those in agricultural areas. However, congressional review and popular debate on the matter have been conducted without the benefit of reliable data on even the magnitude or spatial distribution of alien land holdings. Partisans often rely on media-generated figures to make their most telling points. Public records are inadequate.

In an attempt to improve the level of information available on foreign land holdings, Congress authorized the study of the feasibility of land-record systems to provide more reliable and extensive data on the characteristics and distribution of ownership. This chapter explores the political and institutional feasibility of four proposed models, or scenarios, for creating better data on foreign landownership. Feasibility refers to the probability that a scenario will receive the necessary legislative and executive approval with adequate authority, resources, and institutional and social support to achieve its goals.

In a free society, it is assumed that the use of public authority should be enhanced by widely available information about the phenomenon under consideration. Yet, increasing the amount, detail, and accessibility of publicly collected information about the social and economic activity of people and organizations can become highly contentious. The same is true for selecting the institutional arrangements to accomplish such tasks. In the politics of this Nation, the more detailed the information needed about powerful groups in the society for policy deliberation or implementation, the more intensive the opposition from affected parties may be. Consequently, any effort to evaluate the political and institutional feasibility of proposals designed to systematically increase the quantity and quality of information available to governmental officials and the public must take a number of factors into account. These include the general political circumstances, or "environment," of the issue and

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ideological questions it may raise; the composition of groups likely to favor or oppose the information system; the cost of establishing and maintaining the system; the way in which the administrative organization necessary to implement the proposal fits with existing agencies responsible for dealing with arrangements for collecting landownership information, as well as with the overall structure of the Federal system; and the extent to which the information acquired will meet the needs of the public and public officials.

This chapter initially considers the general issues related to the creation and use of new public information about landownership. Then the characteristics of the four scenarios being proposed for generating information on landholdings are reviewed, and the political environment of foreign landownership is discussed. Finally, a more detailed look is taken at the political and institutional feasibility of each scenario.

### THE POLITICS OF INFORMATION

Who controls the United States in terms of landownership is a question that has seldom been seriously addressed in this country. Americans in general and public officials specifically have exhibited little sustained curiosity about the distribution of landownership as a policy issue. Official concern for making landownership a matter of public record has related chiefly to collecting only the data necessary for taxing purposes and to facilitate the transfer of title. Such information normally is gathered and maintained by local units of government. When broader questions of public policy concerning landholdings periodically arise and informed debate is attempted, this gap in our knowledge is underscored.

In one of the few recent efforts to discover who owns land at the State level, a Ralph Nader study group argued that public knowledge of the identity of landowners and the nature of their holdings are important because: (1) undisclosed ownership creates the opportunity to abuse market power in the social, political, and economic spheres; and (2) such information is needed to determine if governmental regulations are required and to enforce any resulting statutes or rules. 1/

Whitman also notes four considerations in favor of public information over secrecy about landownership: "...facilitating government policy-making, enforcing of criminal laws, encouraging informed public debate, and making private transactions more fair and efficient." 2/ However,

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1/ Robert C. Fellmeth, Politics of Land (New York: Grossman, 1973), pp. 6-7.

2/ Dale A. Whitman, "Secrecy and Real Property," In Barlow Burke, Jr., and Gene Wunderlich, eds., Secrecy and Disclosure of Wealth in Land, Farm Foundation in cooperation with U.S. Department of Agriculture, 1978, p. 39.



after investigating ownership patterns in California, the Nader study group concluded that no systematic statewide records existed. In addition, they found that governmental agencies frequently did not collect such data when they might have and, if the records were available to the agency, they were seldom reported or made accessible to the public. 3/

This lack of detailed information on landownership creates an environment in which serious effort to identify the distribution of control over land in the Nation as a whole becomes highly speculative. Peter Meyer, for example, in an attempt to survey landownership, was led to comment in 1979 that: "Almost everything about American land is known except who owns it." 4/ Meyer continues:

...the link--between control of land and its resources and political and economic power--has rarely been seen as an organizing theme in discussions about either the use and abuse of land or people dependent upon it. 5/

#### The Costs and Benefits of Information

Who owns the land and how they use it can have both positive and negative effects for third parties, communities, and the Nation. Consequently, control over or access to such information can be an important aspect of power in a society. As Lamson puts it:

Secrecy and the attempt to withhold and use information will probably persist as long as there is a desire and struggle for power, and as long as withholding and the selective use of information is, and is perceived to be, powerful. 6/

The existence or absence of systematic and accessible information that is publicly collected and verified about an aspect of the economy or social behavior is not a neutral matter. As has been noted, when a sector of the economy has a monopoly on data concerning its own performance, it is very difficult for the public to evaluate that performance and formulate policies for regulating the industry to service the general interest.

A government's decision to collect data indicates that the subject is important enough to receive public attention. In some cases, such records may result in benefits. Biderman, after an extensive survey of governmental statistical indicators, concluded that they frequently provide important feedback to interest groups concerning phenomena that

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3/ Fellmeth, ibid.

4/ Peter Meyer, "Land Rush," Harper's 258 (January 1979), p. 47.

5/ Ibid., p. 48.

6/ Robert W. Lamson, "Public Policy and Values Concerning Information and Ownership of Land," In Burke and Wunderlich, eds., op. cit., p. 25.

affect their well-being. Further, he found a close relationship between the political power of groups and the likelihood that they would obtain benefits from public information-gathering and reporting activity. As Biderman puts it:

The greater the organization, self-awareness and political power of interest groups, the more likely we are to find statistical and other systematic indicators relating to the social and economic conditions and trends that these groups believe affect their welfare.

Furthermore, it is more than likely that the indicators will reflect the dominant ideological orientations of the most powerful and articulate groups affected by the phenomena measured. 7/

In other instances, public information may result in what are perceived as costs by those affected. Costs may arise in several ways. The existence of a data file does not guarantee that public action necessarily will be taken, no matter how obvious the need. It does mean, however, that a capacity has been created to monitor the phenomenon. This alone may constrain the behavior of individuals or firms if they wish to keep governmental interest from moving from a passive to an active state. The availability of data on landownership, for example, can make the difference between being able, or not, to respond to changing patterns which, if known, could result in public action.

Another potential cost growing out of public data files relates to the degree of uncertainty there is about the uses to which the information will be put by government or others. The higher the uncertainty, the greater the amount of control third parties may exercise over the referents of the information. A land-registration system with full public access could result in a less powerful interest group using the data to build support for governmental action to restrict or regulate the behavior of a more influential group--such as absentee landowners. The assembly of land by a developer might be made more costly, or impossible, if it cannot be kept secret. Whitman comments that the frequency with which property owners seek to conceal their identity may be explained by the possible costs that can result if others are able to use the information. Thus, a negative image, or stigma, might result if the identity is made known by the media of persons owning neglected slum properties, or land used for immoral or illegal purposes, particularly if they are celebrities or politicians. 8/ Other examples are easily imagined.

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7/ Albert D. Biderman, "Social Indicators and Goals," In Raymond A. Bauer, ed., Social Indicators (Cambridge: M.I.T. Press, 1966), p. 131.

8/ Whitman, op. cit., p. 30.



## Denying or Delimiting Access to Public Information

The desire to avoid costs of these kinds can serve as an incentive for individuals and organizations to minimize the amount of public information that is recorded about them. This might be done in several ways. One is simply to lobby against the creation of a data file. Any proposal to establish a national system for monitoring landownership will have to move successfully through the political process necessary to gain congressional approval.

If a data system is authorized, a second strategy would be to limit access to the data, or restrict the form in which it is reported. This could be achieved by having rules of confidentiality adopted to prevent direct public access to the data. Another means would be to call for requirements that the information be reported only in statistical form and aggregated at the highest level possible, so that individual owners and spatial patterns, below the national or State level, could not be identified. Finally, groups could "encourage" the predisposition of many public officials who execute control over the data to use informal means to make access to it extremely difficult and costly for third parties. One observer has concluded that if public information exists, but is not usable or:

...is not packaged to get attention, it often might as well have remained secret. The practical implication of this is that if a party loses out in its desire to keep something secret, it may still protect its interests at other levels. 9/

Wunderlich has commented that the structure of the governmental agency, or agencies, collecting information on landownership and the forms in which the data can be organized can make the difference between whether the publicly recorded identity of landowners becomes usable public information or remains effectively private:

Information in public record may be private if it is scattered in many places; it may become public if it is assembled and displayed. The total landholdings of an individual can be buried in the public records of many county courthouses; when all this public information is assembled under one name, his privacy in this respect is lost. 10/

One additional option available to landowners to make knowledge of their holdings difficult to acquire must be mentioned. This involves the separation of nominal and beneficial ownership by as many as four or five tiers (see chapter 16). Unless the identity of the beneficial owner is

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9/ A. Allan Schmid, "Economic Effects of Secrecy: Discussion," In Burke and Wunderlich, eds., op. cit., p. 119.

10/ Gene Wunderlich, "Property Rights and Information," The Annals 412 (March 1974), p. 94.

required for the public record, the true distribution of control over land will not be known. If such reporting is mandated, most would conform out of a willingness to obey the law or fear of sanctions. However, there is a body of expert opinion that believes that any owner can, with professional advice, make it virtually impossible to penetrate the veils that can be constructed around his or her interest in a parcel.

### Privacy and Individual Rights

A set of powerful ideological issues also can be used against proposals to establish land-data systems. The argument can be made that the publication of detailed information about landownership invades a right to privacy. Even though chapter 11 notes that recent judicial rulings run against this claim, there are strong political currents in America that place considerable value upon the protection of privacy as well as private property rights. In the latter case, it is not difficult to charge that an invasion of the privacy of landowners will be a major step toward undue governmental control over property rights. Opposition to such data files also can tap a related set of concerns about privacy and individual rights. These involve the potential misuse by governmental officials of large-scale data banks which can aggregate a variety of information about specific individuals. A substantial literature exists that reflects a deep popular and professional apprehension over the possible invasion of personal privacy and violation of individual rights through the use of data in large-scale systems. 11/

### Technical Reform of Land-Use Records

A separate stream of concern over land data-recording exists in the United States that is independent of the foreign ownership issue, but that necessarily intermingles with it. There is a loosely structured, but growing set of advocates for the reform and modernization of land-recording methods that includes professionals in the field, academics, lawyers, planners, and functional organizations. Two of the main goals of these groups are the establishment of a cadastre-type record system, and the computerization of data storage and handling.

A cadastre, in basic terms, is a precisely defined inventory of land parcels, sited and measured, that includes records of ownership. In its most advanced form, it would contain geographic, fiscal, legal, and environmental data on every parcel within a jurisdiction, organized in such a way as to allow the rapid insertion and retrieval of information (see

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11/ A review of these issues and a detailed bibliography are contained in Edgar S. Dunn, Jr., Social Information Processing and Statistical Systems--Change and Reform (New York: Wiley, 1974), especially chapter 8; also see Robert Ellis Smith, Privacy, How to Protect What's Left of It (Garden City, New York: Anchor Press/Doubleday, 1979).



chapter 9). The second, and related, aim of these groups is to foster the computerization of assessment, title, and other relevant records at the local level, in forms that would allow joint intra- and interjurisdictional use of property information. Chapter 8 of this study discusses general efforts in the United States to modernize the administration of land-data systems.

In general, there is a record of progress for automating existing records. However, the few efforts that have been made to implement complex cadastre-like systems have faced a number of problems which will be discussed below. <sup>12/</sup> The impetus for improvements that have been made, particularly the computerization of assessment records, has come from organizations such as the International Association of Assessing Officers and North American Institute for Modernization of Land Data Systems, and from professional and academic literature. Their style has not involved strong political lobbying at either the State or national levels. Rather, they have focused more on building an infrastructure to foster the exchange of information, technology transfer, and mutual support. <sup>13/</sup> Consequently, a scenario that would improve land records would receive two types of support from the movement for technical reform that would be of a positive but limited nature. Lobbying in Congress for the passage of the scenario would be visible but not extensive. The proposal also would be able to draw legitimacy from literature advocating modernization.

### Bureaucratic Politics

The discussion to this point focuses on the policy implications of information per se. If, however, one moves to concrete questions of the design of information systems for recording data about landownership, another set of considerations arises about institutional factors. Who should be responsible for collecting, analyzing, and reporting the information and for evaluating the public implications of the patterns found? How would a particular organizational arrangement fit politically into the Federal structure of the Nation, and functionally into the existing distribution of responsibilities for acquiring and processing data on landownership?

How these questions are answered is no less important in the feasibility of a proposal than the other factors that have been discussed. The selection of one agency rather than another or one level of the Federal system rather than another are not neutral matters either. Representatives of interested bureaucratic agencies will attempt to affect all aspects of a proposed data system, including whether it is established. If one is created, the decision on which agency to administer it will constitute a choice among different norms, histories, hierarchical niches, and clientele pressures--all of which will influence the form, use, and accessibility of the data.

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<sup>12/</sup> Richard R. Almy, "Joint Development and Use of Property Information," Assessors Journal 14 (June 1979), pp. 79-85.

<sup>13/</sup> Ibid., p. 90.

These general political and institutional factors provide a backdrop for addressing the more specific question of the feasibility of creating a usable public-information system concerning foreign direct investment in land. Since the history of foreign landownership as a policy issue in the United States will affect the responses the scenarios are likely to receive, it is to this topic that the discussion now turns.

#### THE REEMERGENCE OF AN ISSUE

Concern about foreign ownership of land, especially agricultural land, is not new to the United States, nor is it limited to this country (see chapter 4). In America, there has been a history of recurring attempts to encourage, as well as limit, foreign investment.

##### The Long-Term Policy Environment of Foreign Ownership of Land

Toward the end of the 19th century, after decades of increasing involvement of foreign capital in land, transportation, and other enterprises, great popular agitation developed about the extent of control that aliens appeared to be gaining over U.S. assets. Before the reaction had subsided, all national political parties had taken stands against foreign ownership of land, 13 States had passed statutes which restricted or prevented the acquisition of land by aliens, and the Congress had made the ownership of land in the territories available only to American citizens. 14/ Some statutes were aimed at specific racial groups. 15/

During most of the 19th century, then, there was official support for foreign investment. However, when a particularly rapid expansion occurred in the last decades of that century, combined with unsettled economic conditions, a view developed at the grass-roots level among farmers and laborers that the two phenomena were connected. As a result, fears were expressed that the best farmlands would be acquired by aliens and lost to citizens, and that control of our most valuable resources was slipping into foreign hands. In some cases, racial and ethnic prejudice was involved as well. 16/

After 1900, the pendulum swung again. Interest in extending restrictions on alien land investment and, apparently, efforts to enforce existing laws all diminished. The only exception was the adoption of laws by several States prohibiting landownership by Japanese during World War II.

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14/ Terry L. Anderson, "A Survey of Alien Land investment in the United States, Colonial Times to the Present," In Foreign Investment in U.S. Real Estate. U.S. Department of Agriculture, Economic Research Service, 1976, p. 25.

15/ Ivan H. Light, Ethnic Enterprise in America (Berkeley: University of California Press, 1972), pp. 9-10.

16/ Anderson, op. cit., p. 27.



We are, at present, caught up in another phase of the cycle. In the last decade, there has been a rapid increase in foreign investment in U.S. economic enterprises, including both agricultural and urban land. The response from domestic groups has not been uniform. Public and private organizations at the local, State, and national levels are actively working to attract foreign capital. The opposition, again, has tended to have a populist cast to it and is centered among agricultural groups.

### The Issues Before Congress

Efforts by Congress to deal with the controversy relating to foreign ownership of land provides a "textbook" example of the relationship between information, policy questions, and the resolution of a substantive issue. Since the mid-1970's, committees of Congress have been almost continuously involved with a number of questions concerning the desirability of reducing, prohibiting, or placing other types of restrictions on foreign investment in the U.S. economy. The matter of foreign investment in agricultural land has been a limited, but well publicized, aspect of these deliberations.

The apparent sharp increase in the purchase of farmland by foreign investors has brought charges from agricultural groups that this is having a number of negative consequences for which legislative relief is necessary, such as:

1. Land prices are being bid up, with foreign investors making it difficult for American farmers to compete for prime land.
2. Absentee foreign owners take little or no interest in community affairs or needs, and will not reinvest their profits or purchase supplies locally.
3. Because of the above factors, family farming is being endangered.
4. America's most vital resource, cropland, is in danger of falling under foreign control. 17/

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17/ For recent summaries of these points and reviews of congressional hearings, see: House Report 95-1570, September 14, 1978; U.S. Senate, Committee on Commerce, Science and Transportation, Hearings on Authorization for the International Investment Survey Act, 95th Cong., 2nd Sess., April 19, 1978; U.S. House of Representatives, Hearings Before the Subcommittee on Family Farms, Rural Development, and Special Studies of the Committee on Agriculture, Impact of Foreign Investment in Farmland, 95th Cong., 2nd Sess., June 20 and July 19, 1978, Washington, D.C., July 28 1978, Ames, Iowa; U.S. Senate, Committee on Agriculture, Nutrition, and Forestry, Foreign Investment in United States Agricultural Land, 95th Cong., 2nd Sess., January, 1979.

As apprehension among some farmers has increased, so has pressure from them for governmental action at both State and national levels. Congress, however, has had to consider this question within the broader issue of the impact of all foreign direct investments in the United States. Further, it became clear early in the discussions that there were serious data deficiencies on foreign investments generally and land acquisitions specifically. <sup>18/</sup> A number of steps have been taken because of this to improve the information available to Congress, beginning with the passage of Public Law 93-479, the Foreign Investment Study Act of 1974 (FISA), which authorized a comprehensive overall study of foreign direct and portfolio investments in the United States. Two years later Public Law 94-472, the International Investment Survey Act of 1976 (IISA), extended and expanded the mandate of the FISA. The major concern of this Act was with the collection of fiscal and employment data on firms controlled by foreign capital and the conducting of a benchmark survey on foreign portfolio investment. However, the IISA explicitly recognized that informed public debate had been stymied by the lack of adequate data on the nature and character of foreign ownership in U.S. real estate and in Section 4(d) called upon the President to:

Conduct a study of the feasibility of establishing a system to monitor foreign direct investment in agricultural, rural and urban real property, including the feasibility of establishing a nationwide multipurpose land data system and shall submit his findings and conclusions to Congress not later than two years after the enactment of this Act. <sup>19/</sup>

Finally, and prior to the completion of the Section 4(d) study, Public Law 95-460, the Agricultural Foreign Investment Disclosure Act of 1978 (AFIDA), was passed under intense pressure from farming groups. It requires all foreign nationals holding an interest in agricultural land, other than a security interest, to report to the Secretary of Agriculture their identity, the nature of such interest, and a variety of other data, including transfers of ownership. The Secretary also is directed to analyze the information and determine the effects of foreign investment on U.S. agriculture, particularly in relation to family farming and rural communities.

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<sup>18/</sup> While there is an almost infinite number of statements affirming the information problem, an exploratory study by the Comptroller General, at the request of the Senate Committee on Agriculture, Nutrition, and Forestry, expresses the general feeling well in the title of the report issued: Foreign Ownership of U.S. Farmland--Much Concern, Little Data, U.S. General Accounting Office, June 12, 1978.

<sup>19/</sup> International Investment Survey Act of 1976, Public Law 94-472, October 11, 1976.



While experience under the AFIDA has relevance for the findings of research conducted under Section 4(d) of the IISA, it has not eliminated the need for addressing broader questions about the feasibility of alternative landownership data systems. Consequently, in designing the format of the research necessary to meet the requirements of Section 4(d), a study of the technical, economic, administrative, legal, political, and institutional feasibility of four scenarios for monitoring foreign direct investment in land has been undertaken. The scenarios include:

- I. A direct registration system in which foreign owners would be required to report to a designated Federal agency, and could be identified by name.
- II. The utilization of existing or somewhat modified Federal agency data on foreign landownership for monitoring purposes, with one agency assuming the responsibility of the task.
- III. A multipurpose land-data system (MPLDS) based on county-level units of local government and linked to State and Federal agencies for the transmission of data on all private parcels, including the name of the beneficial owner and parcel characteristics.
- IV. A MPLDS based on a periodic national sampling of landownership, conducted by a Federal agency.

Before turning to a consideration of the political and institutional feasibility of the scenarios, it will be useful to outline and contrast their structural characteristics in terms of how they would relate to the Federal system and existing governmental arrangements, and to consider the nature of the information that they would provide. Details concerning their design are set out in other places. Scenarios I and II are discussed in chapter 5, Scenarios III and IV in chapters 7 and 10.

#### Structural and Informational Characteristics of the Scenarios

With the exception of Scenario III, the proposals involve only Federal agencies in their basic organization and could be established by actions at the national level. Two options are offered in chapter 5 for administering Scenario I. The more favored arrangement would have foreign owners file information forms directly with a designated Federal agency in Washington. This is similar to the method now used by the Bureau of Economic Analysis (BEA) to handle the collection of more general information on foreign investment. The second option is patterned after the existing AFIDA procedures. Foreign owners would file the required information with the county, area, or regional field offices of the agency. The data would then be transmitted to the national level for utilization. In both models, individual parcel ownership and parcel-related transactions could be identified, and it would be possible to disaggregate foreign ownership patterns to the county level. However, no data on domestic

ownership would be available for comparative analysis. The data would be maintained, physically, in Washington in the centralized system, and copies presumably would also be kept at the place of collection, if field offices were used. In either case, public access would depend upon the rules adopted.

Scenario II would rely on a single agency in Washington to synthesize existing data. Administratively, there would be no organizational structure outside of Washington. Chapter 5 recommends that the agency be one already involved in monitoring foreign economic activity. It would draw upon its own data, as well as on relevant information from other Federal agencies. The data sets gathered for synthesis would vary in several parameters, including their originally intended use, the universe or samples utilized, the time frames, levels of aggregation, and rules concerning confidentiality. It would not be possible to identify individual parcel owners or transactions by parcel, compare domestic and foreign ownership patterns, or disaggregate ownership or transaction patterns below the State level, in most cases.

The fourth scenario also would be delegated to a single Federal agency. In this case, it would be one which has a record of having performed survey work. This MPLDS would be based on a national sample of parcels. The data generated would go beyond that available in Scenarios I and II in two ways. First, there would be more information about the characteristics of the land and its uses; second, parcels owned by citizens, as well as aliens, would be included in the sample. Consequently, statistical comparisons could be made of foreign to any other type of ownership category included in the survey. Transaction data concerning parcels would not be available. Individual parcel owners would not be identified and, to keep sample size and costs within a reasonable range, the data would not be statistically reliable below rather large aggregations, such as the State level.

A significantly different institutional structure would be created for the MPLDS in Scenario III. It involves a linked information system in which basic data are collected, maintained, and utilized at the county level. The information, in turn, would be made available to the agency in each State and Federal unit responsible for aggregating, monitoring, and evaluating the data. A record would be created for each private parcel in the Nation, including ownership. All foreign-owned real estate could be compared with all privately owned land in terms of the characteristics of owner and land-related attributes, uses, and transactions.

Provisions would be required to govern the vertical flow of information among counties, State, and national agencies, and possible horizontal movement between local jurisdictions and States. Rules also would be needed for public access to the data, which would be available at all three levels. Finally, the establishment of a system relying on these intergovernmental linkages would be based on voluntary agreements in which the Federal Government provides both the incentives for State and local participation through grants, and national criteria to ensure reliability and comparability of information.



In summary, then, Scenarios I, II, and IV would involve only Federal agencies and could be created by national action. Scenario III would require extensive intergovernmental cooperation and coordination. Only Scenarios I and III could provide reliable data on foreign ownership below the State level. The ability to directly compare foreign and domestic ownership is limited to Scenarios III and IV. Similarly, the dollar costs of III and IV would be the greatest. The county-based MPLDS cost and start-up time requirements go well beyond all others, but it also would be the only one to establish an integrated information system from the county to national levels, with inclusive and current data on parcel ownership, land characteristics, and transactions.

#### A GENERAL POLITICAL ASSESSMENT

Public opposition to direct foreign investment in agricultural land has peaked several times in the history of this country. It appears to be a continuing sentiment held by some groups that is periodically intensified and expanded by economic factors rather than one that emerges de novo from time to time. Whatever its underlying character, it has not been a sustained issue in national politics. The assessment of the scenarios in this chapter is based on the current political environment. It should be noted, however, that past experience would suggest that the importance of the issue will diminish in the long run. Thus, the longer that no positive action is taken during this cycle of concern on the monitoring of foreign investment, the less likely that the type of pressures now being exerted will produce any significant legislation.

The political feasibility of any one of the scenarios in terms of the immediate future will depend on the existence of strong interest group, congressional, or executive support for a more systematic method than now exists for gathering information about and analyzing patterns of landownership in the Nation. Since there has been no long-term demand for such data systems, and since the central focus of recent congressional action has related more to foreign investment, generally, than to land, it is appropriate to ask whether there is a viable basis of support for any of the scenarios. There are a number of reasons to argue that there is not.

Farming groups have been the source of the most intensive political lobbying for Federal action concerning the identification of landownership patterns. Their demands have focused on information relating to foreign, not general, ownership of land and on agricultural, not urban property. All of the scenarios would include information on urban as well as rural land, and III and IV would contain data on land held by both domestic and foreign owners. There is no evidence to indicate that these farm groups would be particularly active in support of any of the scenarios. Their basic information demands have been met in the AFIDA, which requires the national registration of all foreign owners of agricultural land and provides for an analysis and report on the policy implications of the resulting data by the Department of Agriculture. There are other reasons,

as well, why their support is unlikely to carry over, and that there will be few groups to replace them in supplying political pressure in favor of the scenarios.

### The "Protection" of Urban Land

Urban land and who owns it have never had the symbolic significance in America that rural land and its control have had. <sup>20/</sup> Foreign investment in office or apartment buildings, shopping malls, or industrial land has not been viewed as endangering the viability of urban communities or alienating a critical national resource. Generally, the weight of opinion has been favorable toward the flow of foreign capital into urban areas. While some negative attitudes exist, they have been more than offset by strong encouragement for foreign investment from the national government and State and local officials, as well as major groups in the private sector. Labor unions are the only urban group roughly comparable to the grass-roots farming interests that have opposed foreign purchases of farmlands. Unions, however, have not taken a similar stand. They have been far more concerned with the flight of American capital and jobs to other countries than with the reverse.

A lack of urban emphasis also can be observed in the existing State laws affecting landownership. Chapter 3 notes that 15 States have major restrictions on the ownership of land. Seven of these States, most of which have origins in the 19th century, make no distinction between urban and rural land in their limitations. <sup>21/</sup> The laws of the remaining eight, however, including all five States that have enacted restrictions during the current period of concern--Iowa, Minnesota, Nebraska, North Dakota, and South Dakota--exclusively relate to agricultural land. <sup>22/</sup> Further, in campaigns to gain legislative restrictions at the State level, the proponents frequently have been careful to point out that foreign investment in urban areas would not be limited by the proposed statutes.

This lack of attention to foreign investments in urban land is not due to failure of aliens to invest in urban areas or to absence of media publicity concerning such real estate acquisitions. While acknowledging that the data are far from adequate, figures have been put together in chapter 20 to estimate the number of urban and rural land transactions involving foreign owners, as well as the value and acreage size. These data were derived from a systematic review of media clippings, governmental reports, and other sources. Approximately two-thirds of the transactions identified

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<sup>20/</sup> See Gene F. Summers, "Social Attitudes and Values Associated With Foreign Investment and Occupation of U.S. Land," in Foreign Investment in Real Estate, Economic Research Service, U.S. Department of Agriculture, 1976, pp. 59-72.

<sup>21/</sup> Connecticut, Illinois, Kentucky, Mississippi, New Hampshire, Oklahoma, and Wisconsin.

<sup>22/</sup> The other three are Indiana, Missouri, and Pennsylvania.



between January 1977 and April 1979 involved urban land, and one-third rural. Further, the reported value of transactions in urban areas exceeded those in rural areas by \$5 billion.

### Media Perspective

In reviewing the media clipping file maintained for this study by the Economics, Statistics, and Cooperatives Service of the Department of Agriculture, a marked difference in the nature of the treatment of foreign investment in rural areas is clearly evident. Apart from the straight reporting of transactions, extensive coverage is given to the issues of whether (1) foreign investment in agricultural land is having negative effects upon American farmers and farming communities, and (2) it should be limited or prohibited. While there are differences in editorial positions, literally hundreds of smalltown papers, farm-oriented publications, and major city dailies all provide a forum for the debate, and almost all endorse the need for a monitoring system.

The press items on foreign investments in urban land are far less numerous. Some mention has been made of foreign purchases contributing to increased competition for prime city property and complaints have surfaced in a few places about the "problems" neighborhoods face when there is an influx of foreigners buying homes. There has been, however, no serious discussion in the press of limiting direct foreign investment. Similarly, there is no demand for requiring the recording of such transactions in a form that would allow monitoring. Apart from the reporting of individual sales, foreign land investment typically is spotlighted in the urban media by a review feature story in a metropolitan paper or a city-oriented magazine. In summarizing recent trends for a given community, the articles may express some concern for prices being bid up, but there is a far stronger theme of satisfaction that city "X" is alive and growing, and is perceived as a good place to invest by international capital.

There is, then, a different "media reality" for urban and rural foreign investment in the press, a difference that reinforces a climate in which visible political activity and pressure at the local, State, and national levels are almost exclusively focused on issues relating to foreign ownership of agricultural land.

### The Congressional Record

Congress has had questions relating to foreign investment in the United States before it for almost a decade. However, a look at the content of the Foreign Investment Survey Act of 1974, the International Investment Survey Act of 1976, and the Agricultural Foreign Investment Disclosure Act of 1978 suggests a number of things about the orientation of Congress to land-related aspects of the issue. One is that a higher priority has been placed on information about the general impact of foreign investment on the U.S. economy than on land per se, and that there is greater

interest in data that will allow aggregate analysis at the national and State, or macro, levels, than at substate, or micro levels, where the most intense public concern exists. Another is that Congress is more willing to approve the study of information systems about land, or the actual establishment of a reporting requirement, than it is to authorize funds to support them.

Section 4(d) of the IISA, for example, was not provided with money until the latter part of 1978, the time when the study originally was to have been completed. In addition, the costs of setting up and administering the direct Federal registration of foreign owners of beneficial interest in agricultural land established in the AFIDA have been totally absorbed by the Department of Agriculture, since no additional monies were provided by Congress.

Part of the failure to provide timely and sufficient funding rests with the executive branch which did not effectively lobby for allocations in either case. Given this pattern and the continuing climate of fiscal austerity in both the Congress and the Executive, new expenditure authorizations, particularly in large amounts, for landownership information systems will be most difficult to obtain.

It also seems clear that there is no visible support in Congress for the identification of foreign owners of urban land by name, or the development of a systematic monitoring of urban landownership patterns. No serious proposal was made during the consideration of the AFIDA, either from within Congress or by external groups, that urban land be included in the registration requirement. In fact, the Departments of Commerce, State, and Treasury all have consistently opposed monitoring systems of foreign investments in land that would require the disclosure of the names of the beneficial owners. These executive branch agencies are supportive of policies that facilitate foreign investment, and tend to oppose land-registration systems that require name disclosure, taking the position that they would: (1) cause people to evade reporting, thus defeating the need to obtain other data concerning the investment; (2) discourage desirable foreign investment; and (3) might produce retaliatory actions on the part of other countries, or make it necessary for the United States to rescind treaty provisions that are now in force.

This last issue can be a factor of significance in landownership identification policies in this country, but can only be touched on briefly here. If it were obvious that the implementation of a particular scenario would result in strong opposition or retaliation from foreign governments, other things equal, executive branch agencies and spokespersons for major U.S. business and industrial organizations would raise objections to the legislation on the grounds that it would interfere with the conduct of foreign policy and constrain free enterprise. Yet this argument could very well be blunted by the fact that most other nations already impose more extensive reporting requirements and landownership restrictions on Americans than the United States would place on foreigners (see chapter 4).



## A MORE DETAILED LOOK AT SPATIAL AND COST ASPECTS

The number, weight, and complexity of the factors that will affect the political and institutional feasibility of the scenarios differ in each case. Some variables will be relevant for all of the proposals, others will not. The general, longer term policy context of information systems concerning landownership and foreign land holdings have been reviewed, as well as the current political environment which generated this study. With this framework in mind, a more detailed consideration of how these factors may directly affect the scenarios can be undertaken.

### Ownership Identification and Spatial Coverage

If it is assumed that the specificity of information and the spatial inclusiveness of the reporting will influence the support or opposition for a scenario, several observations can be made. All of the scenarios include the collection of information relating to urban as well as rural land holdings. This fact should reduce, or eliminate, for the proposals, the benefit of the mystique and symbolism associated with efforts to protect agricultural land. Further, there should be little carryover of support from the farm groups that backed the AFIDA, and that are active at the State level to restrict foreign purchases of cropland. However, since Scenario II would use only existing Federal data on urban land, and the sample survey format of Scenario IV would be less intrusive than those of I and III, the former two should be somewhat less negatively affected.

The same judgment can be made in relation to the identification of ownership. Scenarios II and IV can be used only as statistical systems and could not report the identity of parcel owners. Scenarios I and III are intelligence-data systems in which parcel-related information includes the identity of the owner. Scenario III includes the identity of domestic as well as foreign owners and will be the most vulnerable to charges that it would create the opportunity for the invasion of privacy and abuse of individual rights by government. If concern over these issues becomes intense, which is highly probable, the range of opposition to this scenario, and perhaps I, would expand well beyond that for the others. Civil rights organizations, conservative groups, and those directly opposed to monitoring foreign landownership all would try to make the propriety of such a data system a central question in the legislative debate.

A choice is available in the design of Scenarios I and III as to whether the landowners are named in the public record or the data are reported in a form that allows owners and the location of their land to be identified. Precedent for both options exists in recent legislation. The AFIDA requires that the data reported by foreign owners to the Secretary of Agriculture be made available for public inspection in Washington, D.C., within 10 days after they are received. No restrictions are placed on the identification of ownership in the governmental use of the information. Conversely, the data collected by the BEA, under authority of the IISA, on foreign investments including land can be reported only in aggregate form.

The IISA provisions are much more typical than those of the AFIDA in congressional action as well as executive behavior. If data on ownership are collected, however, such restrictions on access would be more feasible to apply in Scenario I than III. In the former instance, the collection and maintenance of the data are the responsibility of a single Federal agency. In the latter case it would be necessary to control access to ownership identity information that was maintained by over 3,000 agencies of local government and potentially available to the 50 States and the Federal government.

Apart from their administrative feasibility, efforts to protect privacy by not recording the identity of owners or limiting public access to a data system run counter to the arguments against secrecy in land ownership cited earlier and the spirit of freedom of information legislation. While it is unlikely that proponents of identification of owners and full public access to the data will prevail, these views will be a factor in congressional consideration of the scenarios.

#### Cost and Time Frames

Costs and start-up time requirements also would differentiate Scenario III from the rest. Exact cost estimates are not possible at this time. Even so, gross comparisons can be made. Chapter 5 suggests that Scenarios I and II each would cost under \$10 million annually. The figures for IV probably would be considerably higher because of the large sample requirement for the MPLDS survey. <sup>23/</sup> This difference could be reduced in comparative terms if the survey were to be conducted less often than each year. The start-up time of these three scenarios should differ, but probably would not be a factor in their political feasibility.

Scenario III's dollar requirements would be well beyond those of the others. To be successful the scenario would have to be funded at a level that would: (1) provide incentives for States and local governments to participate; and (2) bring several thousand agencies of county government up to a minimum technical capacity. This does not take into account the amount of State and local fiscal commitment that would be required in III. In contrast, the funding of I, II, and IV is completely a Federal responsibility. In addition, informed observers anticipate that a decade might be necessary before the Scenario III MPLDS could become operative. Thus, apart from the magnitude of the fiscal investment, this gap in time between the initiation of the program and its being fully in place could seriously affect its level of legislative support.

These comments have focused on costs in terms of dollar inputs. It should be noted that this does not constitute a true calculation of costs. To do so would require that the fiscal inputs be balanced with the value of benefits which the scenarios would generate. Measurements of the latter,

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<sup>23/</sup> Personal communication from D. David Moyer.



under the best of circumstances, present significant methodological problems. Consequently, public benefits are not always easy to translate into dollar terms and be readily accepted by all parties in a political debate. Even so, such benefits can be real and influence the feasibility of a proposed program. Chapters 7 and 10 indicate that Scenario III's public benefits, particularly relating to the cost of land title and conveyance, can be significant.

## THE FEDERAL STRUCTURE

Scenarios I, II, and IV are designed to operate through agencies of the Federal government. The tasks of managing a registration system for foreign landowners, synthesizing existing Federal data, and conducting a national survey of land parcels would be assigned to existing units within the Federal executive branch that currently have related responsibilities.

The full MPLDS, Scenario III, however, is again at the far end of the spectrum in terms of its fit into the structure of the Federal system. It is the most extensive and complex, organizationally, and is the only scenario that includes non-Federal agencies. Scenario III would involve voluntary interaction among three levels of government in the collection, maintenance, use, and transfer of data. Implementation of the proposal might necessitate constitutional changes in some States and would require the upgrading of the technical capacity of many participants at the county level. The latter task could not be accomplished without Federal fiscal incentives and standards. Consequently, questions of a Federal nature are primarily related to this MPLDS.

## Technopolitical Issues

Scenario III would, if approved, establish the first standardized national system of land records in the United States. In addition to Federal authorization of the MPLDS, each of the 50 States would have to provide their individual approval and make the provisions necessary for the participation of their appropriate units of local government.

The design of the scenario calls for the utilization of county-level assessing agencies. Some of the issues that can arise from efforts to implement such an arrangement provide a picture of the interrelationship of technological and political factors. Using county assessing units, or their equivalent, to collect and maintain the basic data for the system would involve over 3,000 agencies. As chapters 8 and 10 indicate, there is great unevenness in the area, population, and fiscal resources of counties, and in the technical capacity of their assessing units. Even in those cases where the records are computerized, the systems are not necessarily compatible for data transfer and utilization among counties, or between counties and State agencies.

If the MPLDS is to be automated with compatibility among three layers of government for data transfer and use, minimum standards and levels of technical skill must be established throughout the system. To achieve this will require: Federal grant dollars as incentives, along with appropriate criteria for the MPLDS; the acceptance of both by State governments; and the legislative or constitutional changes within each State necessary to implement the system at the county level. Thus, the creation of Scenario III would depend upon the proposal's successful movement through the political processes of each of the 50 States. The difficulty, or ease, of this will differ from State to State.

The legal feasibility of Scenario III is discussed in detail in chapter 11. It is concluded there, on the basis of a survey of seven States, 24/ that a State's enabling legislation for the MPLDS should contain:

1. A preamble stating the need for statewide participation and standardization and uniformity necessary for modernization of land-data systems.
2. Clear statement of any substantive changes that are needed in the existing law pertaining to real estate.
3. Precise specification of what information is to be included in the system.
4. Explicit provisions concerning the assistance and cooperation required of all relevant public officials and governmental units and the designation of a centralized agency to administer the system.
5. Provisions for State financial and technical assistance.

To gain passage of such legislation, constitutional changes may be necessary in some States to add to, or otherwise modify, the legal responsibilities of local officials. This clearly would be a more difficult political task than if only legislative action were needed for authorization of the MPLDS. However, even the latter process will produce problems.

As chapter 11 notes, to achieve a common data base for a national MPLDS, the substantive law of every State would have to be changed to conform to the federally specified criteria. In some States, this also would include the need to modify State privacy acts as well. Thus, the feasibility of Scenario III must take into account the political culture of the 50 States, the capacity of the existing land-record system, the extent of enabling legislation needed, and whether constitutional changes are required. As these vary, the opportunities for other factors to influence a State's decision on participating in Scenario III will increase or diminish. Such factors include the ideology of citizens and groups concerning State-Federal relations and the right to privacy;

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24/ Colorado, Florida, Illinois, Iowa, North Carolina, Oregon, and Vermont.



attitudes toward the foreign ownership of land; the political power in the State legislature, or with the electorate, of interested parties, such as associations of county assessors, land-record modernization advocates, and realtors or title insurance companies; and the perceived fiscal costs to the State and county governments.

### Distributing Federal Funds

Assuming that the States are favorable, in principle, to Scenario III, there are other dimensions of Federal-State-local interaction in which administrative and political considerations overlap. How national grant funds would be distributed within a State provides one example. The major costs for collecting and maintaining data for the MPLDS would be incurred at the county level. This should be reflected in the rules adopted for the distribution of Federal monies provided to support the system. Achieving this, however, would present several problems.

One difficulty involves the selection of a method for measuring the needs of counties and establishing a formula for allocating money. The fiscal burden for counties related to participation in the MPLDS would vary within and among States in terms of: the start-up costs to meet minimum technical requirements; the number and density of land parcels and the complexity of their features; the rate of turnover in property ownership; and local tax resources. Because significant variations do exist, there would be no obvious way to determine the most efficient and equitable way to distribute funds. Consequently, political bargaining between States and the Federal government and States and local interests would have an important part in the decision on how Federal monies would be divided.

The effects of lobbying over the disposition of funds by governmental units with differing needs and influence could cut several ways. Each State could be expected to seek a grant formula most favorable to itself. The interests of the States, however, would not necessarily coincide with those of the county agencies responsible for the basic work in the MPLDS. States, when given a choice, have not always provided cities and counties with what local officials have viewed as a fair share of Federal money in relation to the functional burdens imposed upon them by grant program requirements. This would be an obvious issue with Scenario III. Consequently, interest groups representing local governments might organize to demand that the congressional authorization of the MPLDS contain a flow-through provision, requiring that a fixed portion of the grant monies be directly allocated to relevant agencies at the county level. These possible conflicts suggest that the MPLDS's feasibility could be affected by differences among proponents over the content of the Federal enabling legislation, as well as by direct opposition to the scenario.

### Rules for the Movement and Use of Data

There is another set of critical technopolitical issues which the design of the MPLDS will have to take into account. These concern rules for the transfer of data among the participating county, State, and Federal agencies and the uses which can be made of the information at each level. Should the data be transmitted only in statistical form beyond the county? If not, should there be restrictions on the way in which the information can be reported? Should the public have access to the land records? If so, at what level(s) of government and under what conditions? Will there be provisions for allowing other governmental agencies, such as multicounty regional planning agencies, to utilize the data?

How these issues are resolved in the MPLDS proposal will influence the responses that interested parties will make to it. One option would be to have the land records available to all participating county, State and Federal agencies and leave the rules for public access and use up to the legislative body of each governmental unit. This would optimize flexibility and be responsive to diverse preferences over the country. At the same time, a high level of uncertainty would be created for landowners as to whether their names would become accessible matters of public record.

The other extreme would be to make data available only in statistical reports at the State and national levels. To achieve this, Federal rules would be required. They could be incorporated as conditions for the receipt of grant funds in the enabling legislation. Such a rule would result in more predictable and conservative use of information about landownership but could have paradoxical results. The more extensively the Federal Government becomes involved in specifying how land records are collected and used, the more susceptible the MPLDS would become to charges that it would lead to a direct Federal role in land-use control. Traditionally and constitutionally, this power has been the province of State and local governments. Many identify State and, particularly, local control of land use as a pivotal aspect of the Federal system. Consequently, this issue raises the same type of symbolism and ideological emotion that is produced by the question of foreign ownership of agricultural land.

A major conflict arose, for example, in Congress between 1971 and 1975 over attempts to create a nationally integrated system of land-use planning. At least six bills were introduced over this period.<sup>25/</sup> In all cases, planning would have continued to be the responsibility of the States. Federal support would have been provided in grants of up to

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<sup>25/</sup> These were: S. 992, National Land Use Policy Act of 1971; S. 632, Land Use Policy and Planning Act of 1972; H.R. 7211, National Land Policy and Management Act of 1972; S.268, Land Use Policy and Planning Act of 1973; H.R. 10294, Land Use Policy Planning Act of 1974; and H.R. 3510, Land Use and Resource Conservation Act of 1975.



\$100 million a year in some proposals. In exchange, the States would have agreed to follow nationally drafted guidelines to ensure compatibility among the various plans.

A variety of factors contributed to the failure of these proposals to gain congressional approval. However, two of the most powerful sources of opposition came from lobbying by major commercial, industrial, and agricultural interests and ideologically oriented States' rights proponents. Both argued that direct national influence of this type on land-use planning at the State and local levels violated basic Federal principles. 26/

#### FUNCTIONAL DESIGN FACTORS

A final set of variables to be considered which can affect the feasibility of the scenarios is largely institutional in nature. They overlap to a degree with some aspects of the issues associated with the Federal structure of our governmental system that have been covered. However, they are more closely related to the characteristics of the agencies that will be selected to administer the scenarios and their functional fit with other public organizations that also have responsibilities for land records.

The choice of administrative arrangements for Scenario I raises several issues which are relevant to the others as well. One of the goals of this scenario is to collect and analyze data on foreign investment patterns in urban and rural land. The arrangement preferred in chapter 5 is to have the task centralized in a single Federal unit. There are, however, no agencies which are equally concerned with urban and rural landownership patterns, and which have an ongoing interest in both the economic and social consequences of foreign control over land. Whichever agency is selected, it will need to bridge gaps between the purposes underlying the scenario and its own norms, spatial orientation, central programmatic mission, and clientele commitments.

One logical candidate for the task of handling the registration of foreign landowners is the BEA. In its own data-related activities, however, it has placed less emphasis on landownership than on other forms of foreign investment which are most likely to be located in urban rather than rural areas. As a unit within the Department of Commerce, the BEA has been associated with policies encouraging the flow of foreign capital into this country and typically interacts with clientele and other agencies which have similar goals. Its orientation to data utilization also is significant. The BEA normally works on a macro scale, reporting information at the national or State level. Foreign landownership data

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26/ A chronology of these legislative efforts can be found in the Congressional Quarterly, Volumes XXIX (1971) through XXXIV (1975).

now collected by the BEA under authority of the IISA are restricted by the legislation to statistical forms. The BEA is itself a strong advocate of confidentiality and statistical data systems.

An agency of the Department of Agriculture, if selected to administer the scenario, could be expected to differ in a number of ways. Considerably more emphasis would be given to land as a valuable resource. The agency would be part of a Federal department which has portions of its clientele exerting great pressure at the State and national levels to restrict foreign investment in rural land. Consequently, it could be expected that more attention would be given to the social and economic impacts of foreign ownership at the micro as well as macro levels. Such a unit, however, would have had no previous mandate to consider the general implications of foreign investment in urban land. While the U.S. Department of Agriculture has had a long, intensive involvement in the international trade of commodities, it has been little concerned with the flow of investment in assets--particularly inbound. Its charge with respect to urban lands is limited largely to the impact of urbanization on rural land use and land speculation.

Other contrasts could be made between these two examples, or with additional candidate agencies. However, what has been set out underscores the fact that the choice of an administering agency is not neutral in terms of the formats for collecting and reporting the data or the values that will be the most salient in analyzing the implications of the information collected on foreign landownership.

The same issues pertain to the selection of an agency to carry out Scenario II; in this case, they are possibly even more critical. The primary task here will be to synthesize and seek to improve existing Federal data relevant to the foreign ownership of land. In Scenario I, new and inclusive information on foreign landownership would be created. Presumably, other agencies with other policy priorities would be able to perform their own analyses of the data as they are made available. In Scenario II, the amount, quality, and format of the synthesized data would be dependent on the initiative, resources, and programmatic values of the agency assigned to perform the task. This will be particularly true in relation to the responsibility of obtaining data from other Federal agencies and seeking their cooperation in upgrading the information they collect and report.

There are many variables that can affect the capacity of a lead agency to influence the behavior or integrate the outputs of other units of equal or higher status. A fine line always exists in a bureaucratic environment between what is perceived by affected parties as efforts to coordinate and efforts to encroach. There is little evidence from the research in this study that any systematic lines of communication or interaction have developed among the various Federal agencies which now gather data related to foreign land investment. Consequently, the success of Scenario II would be in doubt, unless the responsible agency is



highly motivated, is provided with strong authority, and is able to compensate other agencies for any costs involved in the utilization of their data.

The functional fit of the agency to carry out the Scenario IV survey MPLDS should, in one sense, present the least institutional problems. A significant part of the task depends upon a technical capacity to design and conduct a survey relating to landownership and use. Several agencies would meet this requirement, such as the Agriculture Division of the Bureau of the Census and the Economics, Statistics, and Cooperatives Service of the Department of Agriculture.

A proposal is made in chapter 8 that an advisory committee of all data users be created for the survey MPLDS. This would provide an opportunity for local, State, and Federal Government representatives, as well as private sector users, to advise on and negotiate about what they want included or not included in the survey. This type of arrangement would reduce the potential problems of normative bias in the choice of the agency for the scenario.

### The Fit of Scenario III

Even though Scenario IV would be carried out by an agency of the Federal Government, the composition of the proposed advisory committee reflects the Federal milieu in which it would operate. The effects of the Federal system on the administrative arrangements for Scenario III obviously will be more extensive. All of the administrative issues discussed relating to Scenarios I, II, and IV are pertinent here, but considerably more is involved.

If a Federal agency were to have full access to all county-level MPLDS records, it would have an unprecedented opportunity for data reporting and policy analysis of land use and ownership. The full exploitation of this potential would require careful consideration in the design of the administrative structure to utilize the data system. If a clear national mandate were to be given to achieve this purpose, many paths could be followed. One would be to reorganize existing responsibilities for land-oriented data around the MPLDS and create a new agency, perhaps comparable to the National Resources Planning Board. This agency would undertake Federal reporting and analysis and maintain linkages with State and local agencies in the system. Such an approach would assume an active Federal leadership role and substantial influence over all levels of the MPLDS.

At the other extreme, political and bureaucratic conflict could result in a failure to establish any policy focus for Federal participation in the MPLDS. In addition to the orientation of the particular agency that was given administrative responsibility for Scenario III, the form and use of the data would be influenced by a quasi-market demand. A variety of executive agencies probably would seek formal access arrangements. Some

State governments might call for the Federal Scenario III agency to format relevant data for their use because they would lack resources to do it themselves or would wish to transfer the costs. There also undoubtedly would be requests from the private sector for data reports in formats usable for commercial purposes.

Obviously, there are limits to the utility of speculation at this point about the probable organization of the Federal level agency in the absence of more precise detail in the proposal for the scenario. But it also is clear that the amount of attention given to the design of a national support agency for the MPLDS will strongly influence the richness and variety of uses to which the resulting information will be put.

### State and Local Structures

Fifty State agencies also must be designated for the implementation of this scenario. They would provide the critical link point between the Federal and county levels. Much of what has been said of the national level would apply here. The range of choice among candidate agencies would be influenced by a number of administrative and political variables, including their: fiscal resources; established technical capacity and expertise; possession of a multi- rather than a single-purpose data perspective; mandate to engage in planning and land-related data analysis; and formal and informal relationships with local officials who would be responsible for the county-level MPLDS.

Aspects of the county arrangements for the MPLDS were discussed above in relation to the Federal system. However, there are other points concerning the functional fit of these agencies that can be critical to the success of the MPLDS at this level.

There is little doubt that the selection of assessing agencies as the basic building blocks of the MPLDS offers benefits compared with the alternatives. Many of these are noted in chapter 8. At the same time, there may be problems as to how well particular county agencies will fit with the intent of Scenario III.

The assessment and related records in some localities are tightly controlled and utilized as a source of power by the officeholder. A variety of anecdotes exists about this phenomenon. <sup>27/</sup> The resistance of such officials to giving up their capacity to ration access to land-related records may seriously inhibit the establishment of a MPLDS in the locality, or its effective use once implemented.

Quite apart from such clearly politicized cases, the single-purpose function of many assessors may make it difficult to establish protocols for

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<sup>27/</sup> A more systematic basis for conceiving of information as property is contained in Wunderlich, op. cit., pp. 84-86.



other governmental agencies to use the basic data or to allow their data files to be integrated into the system. Issues of cost reimbursement frequently constitute a major source of friction among the units involved.

A growing number of observations are being made about the problems encountered when there are well-intended efforts among officials and professionals to cooperatively engage in the management and use of computer-based information systems. They are particularly instructive in evaluating the feasibility of intra-county as well as of county-State-Federal networking.

Bernard, for example, has commented that while the technical constraints facing computer networking have been largely overcome, the managerial barriers still are formidable. 28/ He goes on to list the following problems which commonly arise: resistance to authorizing an adequate central network management organization; conflicts of interest among participants; concern over loss of local autonomy; differing perceptions of cost and benefits; and the failure of participants to provide and coordinate user support services. 29/ Dealing specifically with efforts to jointly develop and use property information, Almy outlines a similar but even more detailed set of management difficulties. 30/

The point to be made here is that given the present state of the art, many county-based MPLDS will have the technical capacity to establish a sophisticated system but may fail to do so or not be able to achieve full potential because of limited management capability. Far more attention must be given to the management problems of a networking system, a number of which have both technical and political aspects. Unless this is done as part of the feasibility analysis of the system, such difficulties will not be taken into account and given adequate weight in the scenario's design.

#### CONCLUSIONS

This evaluation of the scenarios has taken the current political environment as a given and projected it into the immediate future. Assuming such stability and duration in the factors affecting national policy issues necessarily has pitfalls. Intervening variables cannot be ruled out. A massive influx of foreign capital into urban and rural markets, stimulated by political instability abroad, could result in far stronger support for some of the scenarios than has been found to exist in this analysis.

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28/ Dan Bernard, "Management Issues in Cooperative Computing," Computing Surveys 11 (March 1979), p. 15.

29/ Ibid., p. 7.

30/ Almy, op. cit.

There also is no reason to completely eliminate the possibility that the Federal Government might act to restrict foreign agricultural investment without first having authorized any of the scenarios. Full information has never been a necessary condition for either legislative or executive action. Many State governments have passed statutes to limit or ban foreign ownership without the benefit of accurate knowledge concerning the amount, location or impact of alien controlled land.

Even with these considerations, the probability of an outcome that substantially differs from the findings of this chapter is not high. Given the historical pattern of the issue, opposition to the foreign acquisition of agricultural land is more likely to dissipate over time than to increase.

In assessing the four scenarios in terms of the assumptions of this analysis, a series of trade-offs appear between the political and institutional feasibility of the proposals and the amount and quality of the data that would be provided. One trade-off relates to cost. Another concerns the extent to which data that are now private or of limited access are made public or accessible. A third involves the complexity of the institutional requirements and the extent to which they differ from existing arrangements. As each of these is increased, the value of the data for public purposes goes up but the feasibility goes down.

Considering this finding, Scenario II, which provides the least information, probably is the most politically viable, in comparative terms. Yet, it has no well-identified interest group or internal congressional support. Its advantage lies in the fact that it would be the one most likely to gain backing due to an intervening variable that created a demand for more information on nonrural foreign land investments.

This analysis also suggests that an important distinction needs to be made among the scenarios. Scenarios I and II grow directly out of the current concern, largely among farming groups, over foreign investment in land. However, the data that would be produced have several deficiencies in satisfying the interests of either the farm-related proponents of information-gathering or legislators seeking a better data base on which to determine the impact of land acquisition by foreigners.

The passage of the AFIDA has met the basic information demands of farming groups. They have expressed little concern for data about foreign investment in urban land, which is what Scenario I would add to what will be available through AFIDA. Scenario II would produce little new information that is relevant to the main thrust of complaints about foreign investment from concerned agricultural groups. In fact, the most likely consequence of these two scenarios would be to diffuse the issue of the danger of foreign purchases in farm areas. All estimates that have been made to this point by Federal agencies indicate that the percentage of foreign-controlled cropland is quite small in relation to the total area under cultivation in this country.



Yet, both scenarios and the AFIDA actually fail to provide an adequate basis for either farm interests or congressional decisionmakers to evaluate the socioeconomic consequences of foreign land purchases on the family farm or the agricultural community. More information, disaggregated to at least the county level, would be necessary to do so. Ideally, the data would allow a comparison on a time-series basis of the ownership and use patterns of resident and nonresident foreign landowners with those of resident and nonresident domestic farm landowners.

Only Scenarios III and IV would include information on both foreign- and domestically controlled agricultural land. These two proposals do not grow out of ad hoc responses to the current political issue of foreign landownership. Their origins are more with the movement to modernize land-use records. While information about foreign landholdings would be included, it would constitute a minor aspect of the overall data yield in both cases. The scenarios would move toward, in one case, and create, in the other, a nationally integrated system of land records with multipurpose uses. Because of these characteristics, however, they can neither draw upon the momentum that was behind the passage of the AFIDA nor locate powerful political support among groups interested in the reform of land records at the present time.

The probability that Scenarios IV and especially III could receive approval is now very low. If, however, the creation of an MPLDS is a longer term goal, its prospects will be enhanced by several strategies. One is to argue for it on its own merits, those of a national cadastre. Another is to develop proposals based on the assumption that it will more likely, and should, grow out of a series of experiments and incremental steps. Even apart from the present cost and ideological problems, a serious question exists as to whether our management capacity is adequately refined to implement a networking MPLDS at the State or even large-county scale with predictable success. Federal support for the general upgrading of land-record systems and for more complex innovations and demonstrations should be sought. Along with these actions, the professional and administrative groups which are proponents of land-record reform should, in addition to general advocacy and the fostering of the diffusion of technological advances, develop a better understanding of implementation and management problems of such systems. Once an identifiable base of support is created, Scenario IV may be more acceptable as an intermediate step.

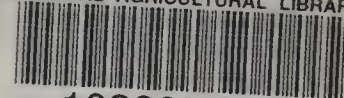






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